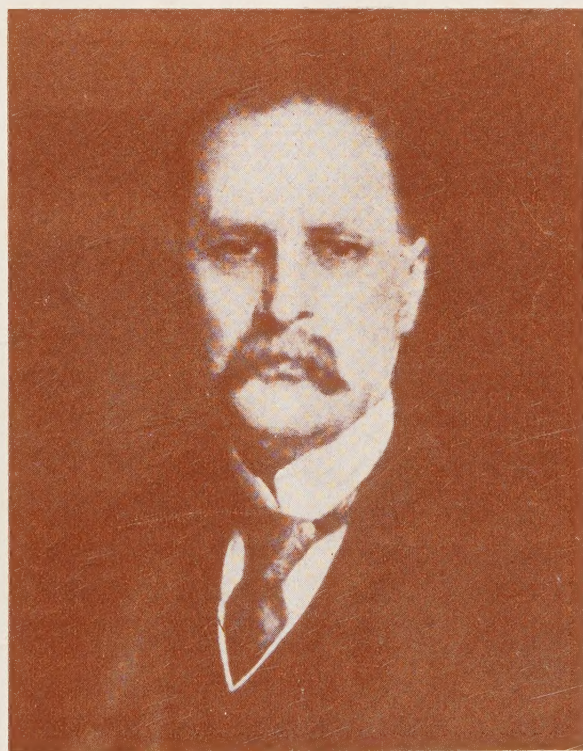


83

MEDICAL RECORD



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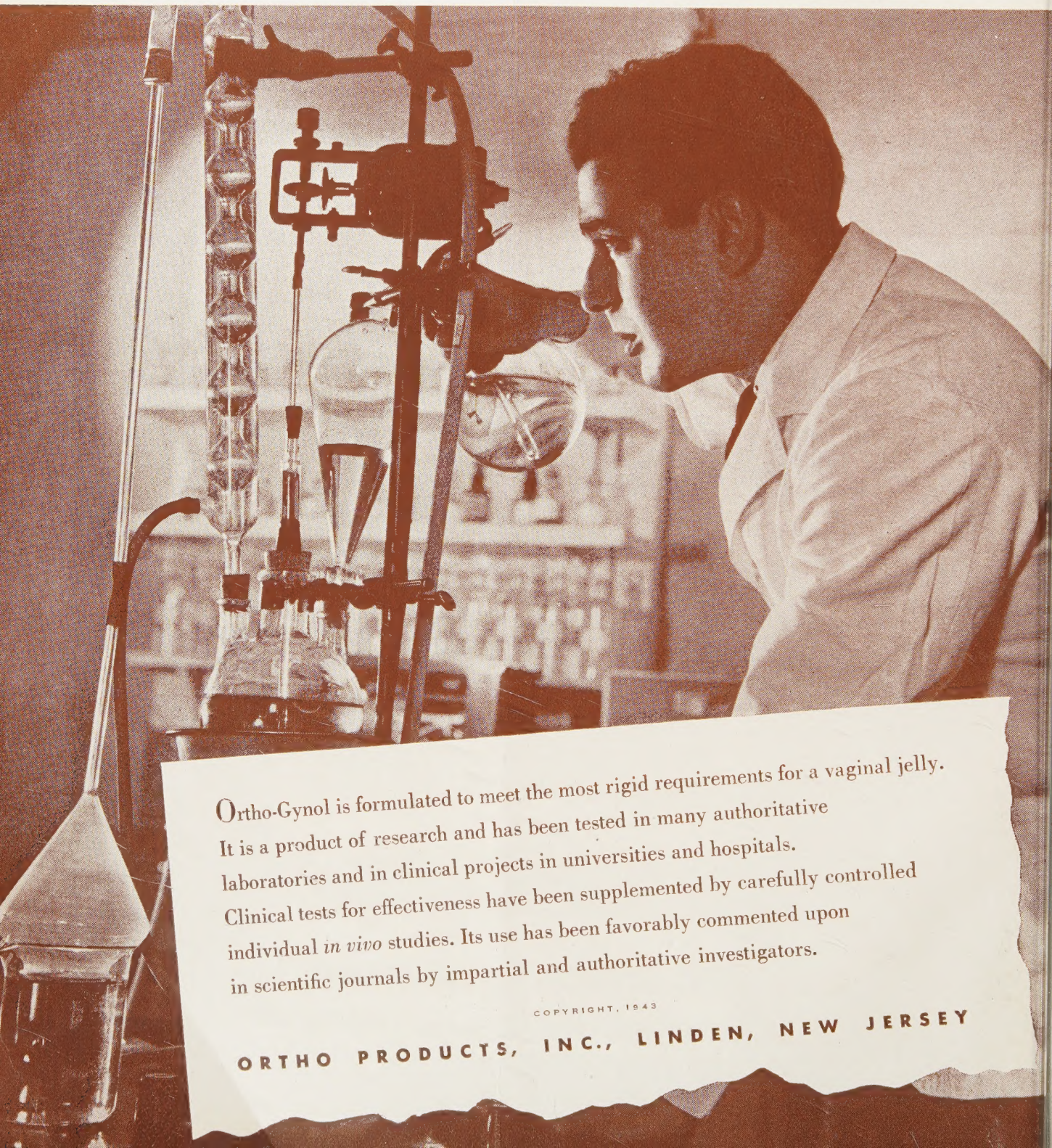
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January 1943

Vol. 156, No. 1



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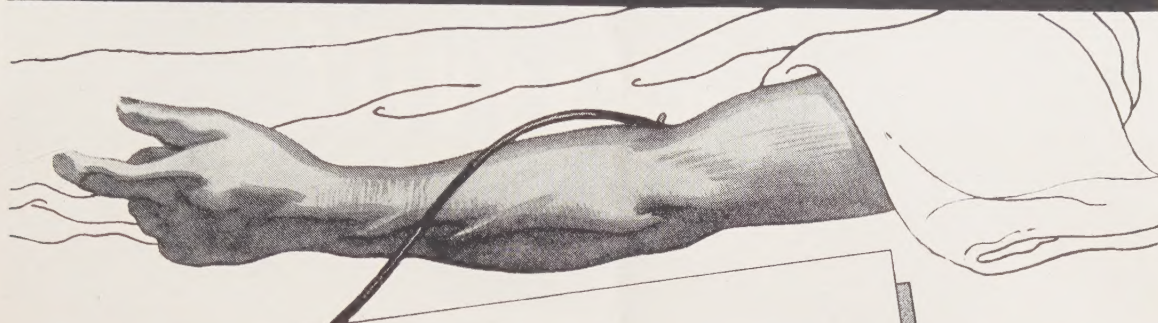


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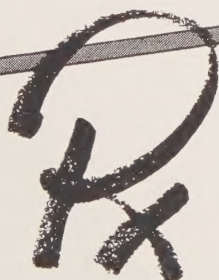
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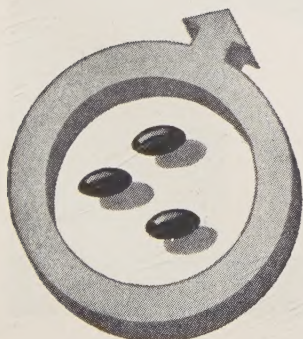
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†Fowler and Barer: "Rate of Hemoglobin Regeneration in Blood Donors." J.A.M.A., 118:421:1942.

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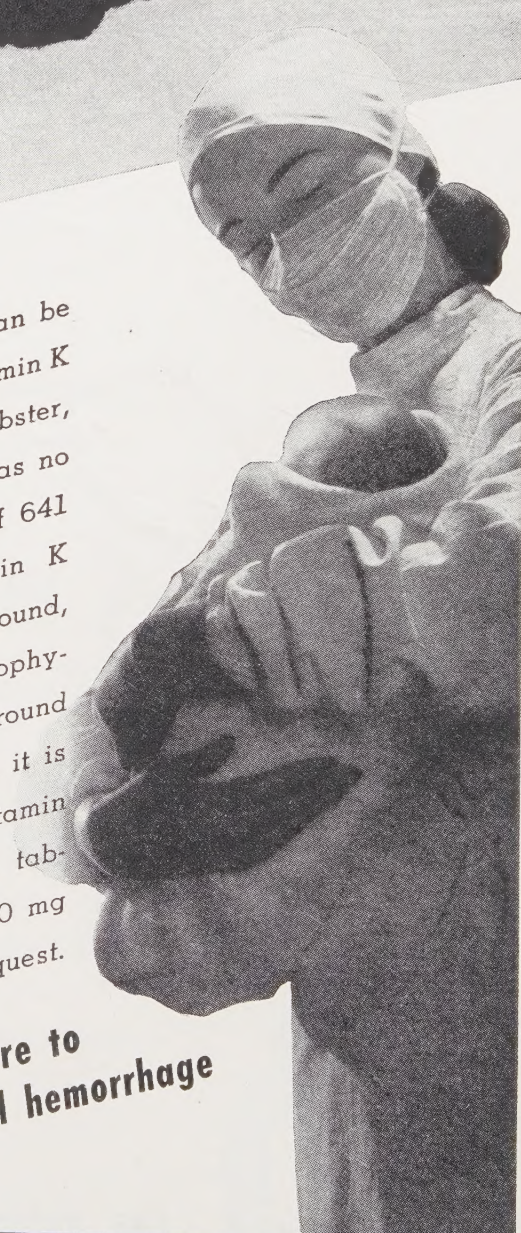
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JANUARY 1943

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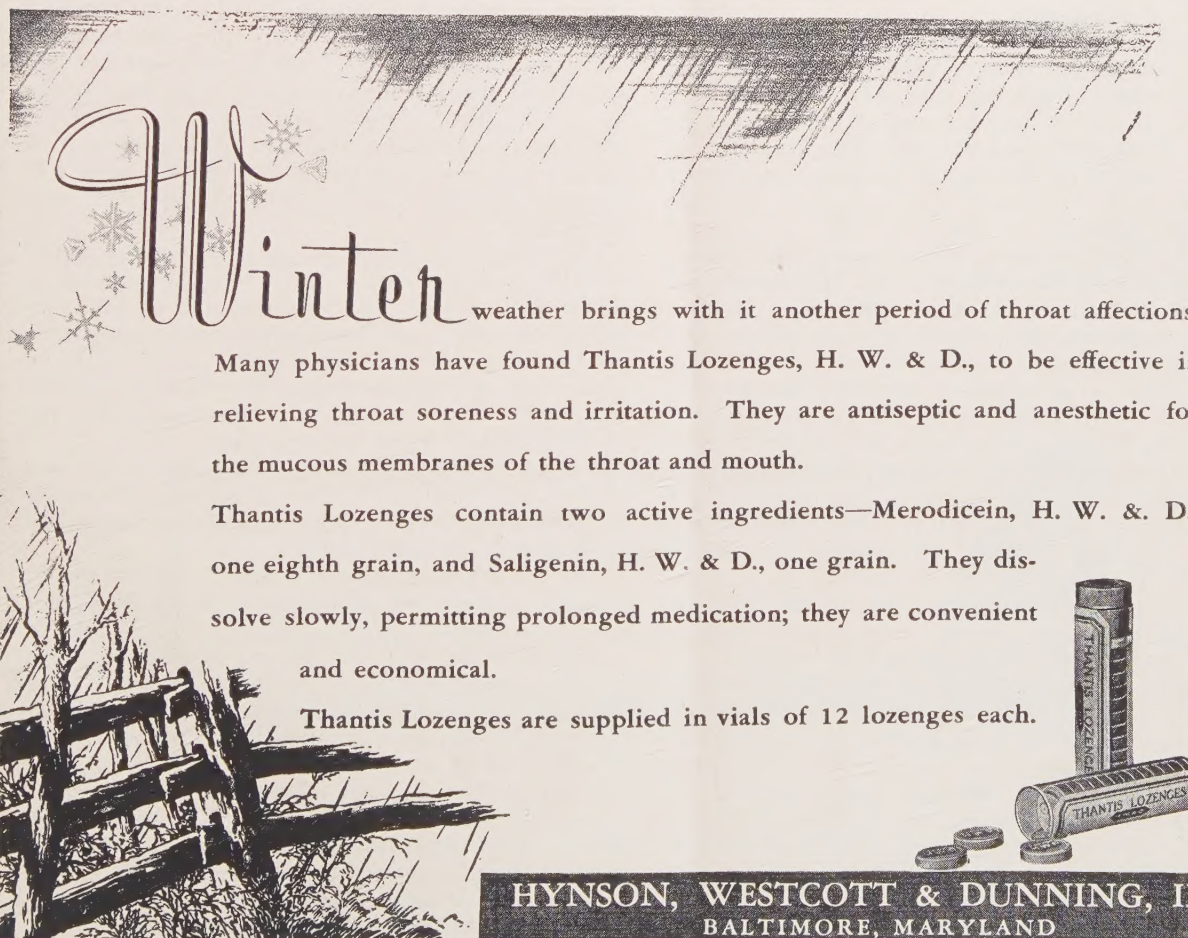
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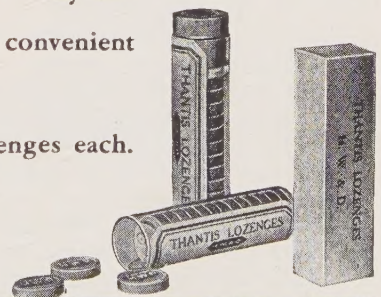
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Open Forum

Higher Mathematics

To the Editor.—

With reference to Mr. T. Swann Harding's article, published in *Truth of the Matter* and is entitled "Our Food Situation"; either Washington, D. C. is seventeen and one-half miles from Omaha or the Truth of the Matter is that that Swann song ain't so very far from wrong.

Not that it matters.

SHELTON G. SILVERBURG
Waco, Texas

Abnormal Behavior In the Armed Forces

In the second of the Salmon lectures, delivered at the New York Academy of Medicine on November 14th, Dr. Emilo Mira, chief psychiatrist for the loyalist army in the Spanish Civil War, described three types of psychopathic or abnormal behavior most often observed among members of the armed forces in wartime, as explosive or aggressive behavior, drunkenness, and extreme resentment.

Concerning the last named type, he said that there was no greater mental hazard than smoldering resentment. It appeared often among soldiers for fancied inequalities, or because they believed they were mistrusted or felt that they were superior in intelligence to their officers. Resentment often attacked the heads of an army, he said, and was often accompanied by delusions of persecution.

Drunkenness usually appeared in wartime, he said, in those soldiers and officers who feel that they must drink to sustain their courage. Prohibition by the army is not much use, because they may find an "ersatz" drink which is even worse than alcohol.

"One method of solving the drinking problem in the army is to place identification tags on men who have been drinking, so that they may be observed closely by their superiors, in an attempt to discover the cause of their excessive drinking. The tendency of alcoholics to congregate among themselves is overcome by assigning an alcoholic, as if by chance, to a more stable, nondrinking partner."

The explosive or aggressive type of behavior, Dr. Mira said, was common among the introverted members of the military forces, who for a long time inhibited their feelings, then suddenly, on slight provocation, exploded into some act of motor or verbal violence which was a flat infraction of military rules and carried the death penalty. This action was usually followed by a brief period of amnesia, so that the victim was unable to remember what he had done. Dr. Mira suggested in such a case it was wise for the commander to render the man "temporarily invisible".

Despite these abnormalities of behavior in wartime, Dr. Mira declared, the discipline of military life and of war was more likely to help than harm individuals of abnormal personality characteristics. Some mild schizophrenics reacted splendidly under the stress of bombing and battle, because war supplied the stimuli to make them forget their inner conflicts and make them behave like normal people, whereas, on the other hand, normal people were apt to plunge into deep depression and become helpless under the same cir-

cumstances. Hence, the contrast between the two groups was considerably lessened in wartime.

Another type of abnormal behavior common in wartime was the psychoneurosis or abnormal mental state which was produced or heightened by war conditions, said Dr. Mira. This was opposed to the psychopathic state, which existed previous to the war and independent of it. "War does not increase the number of psychopathic victims, but it does greatly increase the number of psychoneurotics. The latter express themselves in hysterical outbursts, anxiety states and the loss of motor control. Treatment of this motor disability may produce a seemingly complete cure. However, the symptoms are apt to reappear, and the less extended they are, the more difficult they are to cure."

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The Inter-American Division of the New York Academy of Medicine and *América Clínica* announce that they have the honor to place at the disposal of their distinguished colleagues and coworkers, the publishers and editors of Latin American medicosurgical journals, the recently organized American Medical Information Service. This service will supply without charge the journals whose editorial offices request them, with articles translated into Spanish and abstracts of articles published in American journals, after their authorization has been secured.

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The expense in connection with the mailing of this material by airmail and of the photos and cuts by ordinary mail, will be paid by the service so that they will reach the Latin American journals completely free of charge; however, the expenses incurred in returning the photos and cuts will be borne by the beneficiary. The return of said photos and cuts will be essential and urgent in every case.

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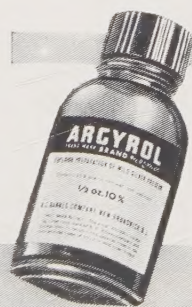
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Lessons from British Experience in Civil Defense

Dr. George Baehr, chief medical officer, Office of Civilian Defense, who recently made a tour of inspection of the emergency medical facilities in England and Scotland, said that three years of British experience with air raids have significantly modified earlier concepts regarding the field casualty service. The following observations made on this trip were forwarded to regional directors and regional medical officers for their information and for transmission through state chiefs to local chiefs of Emergency Medical Services:

1. Heavy raids occur invariably at night; heavier high-explosive bombs and land mines are now being employed, up to 2,000 kg., with much greater destructive effects. Incendiary bombs are used in much larger numbers, and fire is now the most serious hazard.

2. In large cities the field casualty services may handle 2,500 to 3,500 casualties during a night raid. All serious casualties are moved directly to hospitals.

3. A large fleet of four-stretcher ambulances is essential for life saving. Fourteen thousand ambulances were made in England and Scotland by purchasing used cars, stripping them, and then mounting a simple ambulance body on the chassis. London uses over 1,500 of such ambulances and 550 sitting-case cars. The use of tradesmen's trucks proved universally unsatisfactory; three out of four never arrived on the scene, and lives were lost due to the delay and confusion. Because of the large number of casualties to be transported in a few hours, no ambulances which carry less than four stretchers are employed. For the simultaneous evacuation of damaged hospitals, a fleet of two hundred converted busses carrying ten stretcher cases and six to ten sitting cases are immediately available, and another two hundred are obtainable within two hours.

4. Casualty stations (British fixed first-aid posts) are

necessary at or near all hospitals and at places more than a mile from hospitals to care for minor casualties which do not require hospitalization. Many are now on a care-and-maintenance basis and are activated only during a raid. When functioning, the staff usually consists of one or two doctors, several nurses, and a variable number of aides and auxiliaries.

5. In large cities casualty stations need not be more numerous than one per 25,000 inhabitants; they should be located about a mile apart. There are less than three hundred in the London area, with a population of about ten million and a land area more than twice that of Greater New York. In smaller, thinly settled communities, they are more numerous in relation to population, but the distances between them are proportionately greater than in cities.

6. First-aid parties (our stretcher teams) are not necessary, are a waste of manpower, and are rapidly being eliminated. First aid at incidents is essentially a function of the rescue parties (our rescue teams), which extricate the casualties from under the debris of demolished buildings. All first-aid parties in England and Scotland are, therefore, being merged into the rescue parties. They include a leader, an assistant leader, and eight other members, and are entirely independent of the fire department. They are a life-saving service related to the medical services concerned in field casualty work.

7. The experiences of Britain under air-raid conditions have dispelled many preconceived notions concerning first aid. Almost all raids occur at night; the victims are crushed under the debris of demolished buildings and are either dead or severely injured; less than a third are slightly injured and can be cared for at casualty stations; all the severely injured must go to a hospital; victims are invariably covered with dust and dirt which hangs in the air for hours. The conditions under which the rescue workers encounter the injured beneath the structural debris, the darkness and the dust which always fills the air, the large proportion of dead and severely injured, and the urgent need for immediate hospitalization make it impossible to apply most peacetime concepts of first aid.

(Continued on page 10)

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8. Wounds are usually grossly contaminated and need only be covered with a shell dressing until the casualty reaches the hospital. Hemorrhage is usually controllable with a pressure dressing. The tourniquet is rarely employed. Burns are covered only with sterile gauze until the casualty arrives at the hospital. Tannic-acid jelly as a first-aid dressing for burns has been discarded because of the dirt which invariably contaminates the burned surface, because the jelly deteriorates rapidly, and, lastly, because tannic acid ignites in the presence of phosphorus when applied to burns caused by the explosion of phosphorus-oil bombs.

9. Traction splints are not used. An exception is made if the casualty must be transported a long distance over country roads. Unlike Army field experience in the last war, the few miles of travel to a hospital over the paved roads of a city do not warrant the application of traction, especially as the darkness and the conditions of an air raid also make hurried application of the procedure difficult or impossible. All that can be done is to place the fractured extremity gently in alignment, bind it with triangular bandages to the uninjured leg or to an improvised splint, or apply a Thomas splint if one is on hand. Movement of the fragments can also be minimized by snug application of the blankets according to the Wanstead technic of blanketing and by the use of sand bags, which should always be carried in the ambulance.

10. Shock is treated at the incident by prompt administration of adequate doses of morphine (up to one-half grain for adults), coramine, proper blanketing, administration of fluids, and the use of hot-water bottles during transportation to the hospital. The use of plasma or blood transfusion is deferred until arrival at the hospital; it is ordinarily quite impossible in the darkness, dirt, and confusion at the incident.

11. The presence of a physician at the incident is invaluable, but more than one is unnecessary. In fact, one physician may cover several nearby incidents, leaving his nurse or one of the nursing auxiliaries of his emergency team at the incident while he moves temporarily from one to another in the immediate neighborhood.

12. Even though a single night's casualties requiring hos-

pitalization may total one or two thousand, large hospitals rarely receive more than 50 to 100, the load being distributed as evenly as possible throughout the city.

13. A large casualty receiving hospital is often related to one or more peripheral hospitals in the suburbs or in a country district. There are now four base hospital beds for each casualty bed in the cities.

14. Upon receipt at a local report and control center of a message from an air-raid warden that an incident and casualties have occurred, an "express party" is immediately dispatched to the scene. An "express party" includes one rescue-first aid party, one ambulance, one sitting-case car, and one mobile medical unit (our mobile medical team). The latter consists of one physician, one nurse, and two auxiliaries. No other equipment and personnel of the emergency medical service is dispatched unless additional assistance is requested by the incident officer (usually a higher police official) or by the incident physician on the scene. In this manner useless movement is avoided and equipment and personnel of the community is carefully conserved.

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Seventy-six cartons containing approximately five thousand pounds of surgical instruments rescued from the scrap metal heap were received on December 17th by the Medical and Surgical Relief Committee of America. They were donated by Dr. Walter L. Bierring, State Health Commissioner of Iowa, when it was learned that many of the instruments contributed to the recent Iowa scrap metal campaign were in good condition and would more effectively serve the war effort if reconditioned and made available to the various organizations which call on the Committee for help. After the necessary repairs have been made the

(Continued on page 12)

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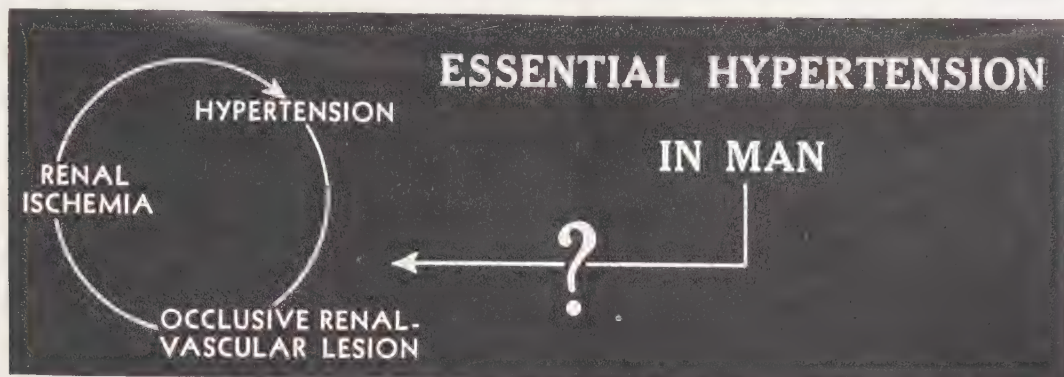
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1. Lancet, 1:34, January 10, 1942

2. J.A.M.A. 120:147, September 12, 1942

3. J. Missouri State Med. Assoc. 39:237, August, 1942

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The idea of salvaging the instruments for reconditioning came from Harry A. Hurd, D.D.S., of Des Moines, Iowa, who acted as chairman of the Dental Salvage Committee of the Des Moines District Dental Society in the government's scrap metal campaign. About ten days after the start of the dental drive, a campaign for scrap was also directed to physicians under the leadership of Dr. Robert L. Parker, of Des Moines, chairman of the Iowa State Medical Society.

The joint drive was a success from the beginning but it soon became obvious that many of the instruments were too good for scrap. However, it yielded approximately one thousand pounds of scrap in addition to the instruments segregated for reconditioning.

Prematurely gray individuals are eligible for pancreatic disturbances, the adrenal gland possibly being the cause of such an imbalance.

Rôle of the Pharmacist in Venereal Disease Control

Pharmacists are playing an important rôle in the wartime control of venereal diseases, says the American Social Hygiene Association, in making available to the medical profession a report based on a recently completed survey.

Drugstore counter prescribing for syphilis and gonorrhea has greatly decreased, the Association reports. Forty-six cities in fifteen states were visited, and 716 drugstores studied. Only eleven percent of the drugstores visited offered diagnosis and treatment for conditions presumed to be syphilis and gonorrhea. Thirty-two percent sold remedies on specific request but did not attempt to diagnose, fifty-seven percent urged immediate and well qualified medical care, and in a large proportion of the drugstores where remedies are stocked and sold, the druggist advised that "self-medication is bad and dangerous business".

This survey showed a decided improvement over conditions found in 1939 and 1940. During 1939, under the cooperation of the United States Public Health Service and the American Social Hygiene Association, a similar survey was made in thirty-five cities covering twenty-six states. In these communities, 1,151 drugstores were visited. Tabulation of the results of the interviews showed that in sixty-two percent of the drugstores visited offers were made to diagnose and treat syphilis or gonorrhea. In thirty-one percent the persons consulted did not attempt diagnosis but offered for sale a variety of patent remedies, and only seven percent of the whole number refused to make a diagnosis or sell remedies. Many of the druggists in this

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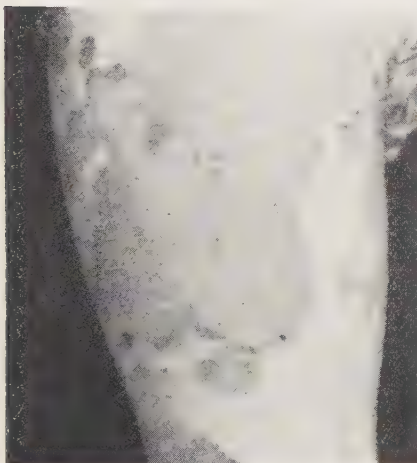
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small group took the time and trouble to advise the patient to seek adequate medical care and made an honest effort to dissuade him from any attempt at self medication.

The report of the survey was published in *Venereal Disease Information* in January, 1940. It received wide publicity and led to the formation of the Joint Committee of the American Pharmaceutical Association and the American Social Hygiene Association, organized to bring about closer cooperation between physicians and the pharmacists in eradicating syphilis and gonorrhea. This Committee has constantly urged druggists to follow, with reference to venereal diseases, the principles of ethical practice enumerated below:

1. The pharmacist should make no diagnosis.
2. The pharmacist should not prescribe for patients.
3. The pharmacist should refer patients to physicians.
4. The pharmacist should not sell "patent medicines" and thus encourage self medication of these infectious diseases.
5. The pharmacist should distribute literature of an informational nature regarding syphilis and gonorrhea. Such material may be obtained from health departments and from the American Social Hygiene Association.

6. The pharmacist should cooperate with the pharmaceutical society and official and voluntary health agencies in promoting high professional standards.

7. The pharmacist should stock and sell only reliable products for chemical and mechanical prophylaxis of venereal diseases, and provide reliable information regarding the value and limitations of accepted prophylactics used under approved conditions.

When subsequent soundings were made during 1940 in many of the thirty-five cities originally studied, a decided trend away from the former conditions was discernible. In many drugstores where diagnosis and treatment had been offered, counter prescribing and the sale of nostrums were no longer practiced. In their place many druggists recommended competent physicians and various venereal disease clinics. This trend away from counter prescribing for venereal diseases has continued as proven by the recent 1942 survey.

Vitamin C Under Allocation Control

According to an order issued by the Director General for Operations of General Preference, ascorbic acid (vitamin C) was placed under allocation control on December 15th. The primary cause of this action was the development of the use of vitamin C in food and medicinal production for the armed forces. Production which was formerly geared to meet pharmaceutical needs does not meet current estimated requirements which will probably be more than double the 1942 figures. Enough will be available, however, for essential civilian use. Vitamin C is used both by the armed forces and civilians in the prevention and treatment of scurvy and other deficiency diseases. Large quantities are being used by the Quartermaster Corps and there is also a substantial demand for Lend-Lease requirements. Sorbitol, recently placed under allocation control, is one of the principal raw materials needed for the production of vitamin C.

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*J. A. M. A., 93:1110—October 12, 1929
Brückner, H. - *Die Biochemie des Tabaks*, 1936
The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941

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Gorgas Medal Awards

The first awards of the Gorgas medal, recently established by John Wyeth & Bro., in memory of Surgeon General William Crawford Gorgas, were made at a meeting held in Washington, D. C., December 15, 1942, to three prominent medical men "for outstanding contributions to the health and effectiveness of the armed forces", by Colonel Edgar Erskine Hume, who is second officer in rank to General Davis, the commandant of the Medical Field Service School at Carlisle Barracks, Carlisle, Pa. The recipients of the medal are: Brigadier General Jefferson Randolph Kean, who was cited for his aid in conquering yellow fever by initiating warfare against mosquitoes in Cuba in 1900; Brigadier General Frederick Fuller Russell, who, through research and administrative direction, made it possible for the U.S. Army to be the first in the world to be protected against typhoid fever; for many years he was director general of the International Health Board; Rear Admiral Edward Rhodes Stitt, who before retirement devoted forty-two years to the service of the Naval Medical Corps, including eight years as its surgeon general. Admiral Stitt was described as a "distinguished scholar and an international authority on tropical medicine", and had added materially to knowledge of tropical medicine.

In making the presentations Colonel Hume said nothing was more important than preventive medicine. In past wars, disease had destroyed more soldiers than the enemies' weapons. Modern science, he said, had robbed war of the terrors of such diseases as typhoid fever, yellow fever, and scurvy.

The awards consist of large silver medals inscribed with the likeness of General Gorgas, and individual checks for \$500. Among the guests were the surgeons general of Army, Navy, and Public Health Service.

Educational Films for Studies in Otolaryngology

Through a grant for postgraduate studies in otolaryngology, the Auralgan Research Division, 58 Varick Street, New York, N. Y., has available a library of visual educational films in sound and color, which are loaned gratis to accredited medical groups.

This service includes the film, projector, sound equipment and operator, whenever this equipment is not available. The required projection time is thirty to thirty-five minutes for each film, and a minimum attendance of at least twenty-five physicians is required.

These films are:

Otoscopy in the inflammations

Otitis media in pediatrics

A clinic on acute mastoiditis

Suppurative petrositis, meningeal

A dry clinic on sinus thrombosis

They have been edited by Dr. Samuel J. Kopetzky, Dr. Ralph Almour, Dr. Julius W. Bell, and Dr. Murray Burns Gordon.

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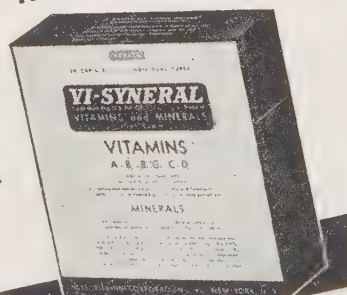
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Our Contributors

EDGAR ERSKINE HUME, M.D., Carlisle, Pa., is a Colonel in the Medical Corps of the United States Army, and is now second officer in rank to General Davis, commandant of the Medical Field Service School at Carlisle Barracks, Pa., where he is helping to train medical officers for their field duties in this war. He was graduated in medicine at Johns Hopkins University, Baltimore, in 1919, and received the degree of doctor of public health in 1924. He did postgraduate work in Germany and Italy. He entered the United States Army in 1916. After the Armistice, he was sent to Serbia to direct the campaign against typhus fever, and while engaged in this work was appointed American Red Cross Commissioner and had charge of military and civil relief. Upon his return to America, he was awarded the Distinguished Service Medal by the United States Government. Many honors have come to Colonel Hume. Besides decorations from some thirty countries and nine American and foreign honorary degrees, he holds membership in some of the most important of the world's learned societies. He speaks several languages and has represented the United States at eleven international congresses. He has also to his credit over two hundred books and papers on scientific and historical subjects.

* * *

CLIFFORD A. WRIGHT, M.D., Los Angeles, Calif., was graduated from the University of Southern California Medical School in 1907. He specializes in endocrinology and is associated with endocrine clinics at the Los Angeles General Hospital, Los Angeles Orthopedic Hospital, Marion Davies Clinic and Santa Rita Clinic. He is assistant professor of medicine at the College of Medical Evangelists, and is also a member of the staffs of several private hospitals. His hobbies are shooting and hunting.

* * *

EDWARD HUNTINGTON WILLIAMS, M.D., Los Angeles, Calif., is a neurologist and psychiatrist. He was formerly lecturer on criminology at the University of California, and psychiatrist to the juvenile department of the Superior Court of Los Angeles County. He has done special research work on the relationship between endocrine and nervous and mental disturbances. His hobby is the writing of short stories, serials, and works of fiction, of which he has many to his credit. His recreations are hunting, pistol shooting, and archery.

* * *

FREDERIC DAMRAU, M.D., New York, N. Y., is a graduate of Long Island College Hospital where he received the Corydon L. Ford prize for the best dissection and later (in 1916) taught anatomy. During the World War he served as an officer in the Medical Corps from 1917 to 1921. He was formerly assistant attending physician on the neurological service at King's County Hospital and the out-patient clinic of Long Island College Hospital. He is now engaged in medical research on foods and drugs. His hobbies are tennis and contract.

* * *

MILTON A. LESSER, B.S., New York, N. Y., is a graduate of the College of the City of New York. He has been associated with several industrial and research laboratories and has done research on cellular resistance

in the department of experimental surgery, New York University School of Medicine, and on vitamins in the department of chemistry, Fordham University. His hobby is collecting material on the history of medicine and pharmacology. He is a member of the American Chemical Society and other scientific societies.

* * *

JOSEPH FREDERICK SAPHIR, M.D., New York, N. Y., received his degree in medicine from the College of Physicians and Surgeons, Columbia University, in 1902, and received the first Harsen prize for clinical reports. Since 1910 he has specialized in proctology. At present he is proctologist to the Manhattan State, Bronx, and People's Hospitals, and is the director of the proctologic department of the Stuyvesant Polyclinic. He is a member of the American Proctologic Society and of other medical organizations. His hobby is etching.

* * *

JOSEPH BERBERICH, M.D., New York, N. Y., received his degree in medicine from the University of Frankfurt, Germany, in 1919. He did postgraduate work in Berlin, Vienna, Frankfurt, and London in surgery, internal medicine and morbid anatomy. He came to the United States in 1940. He is now a clinical assistant in the Mt. Sinai Hospital, New York, and engaged in research work on endocrine disorders in connection with nose and ear diseases and in new x ray methods. His hobby is travelling.

* * *

MICHELE GERUNDO, M.D., Topeka, Kansas, was born in Italy and received his medical education in the Universities of Naples, Paris and Mexico City. He is at present pathologist to the Topeka State Hospital. He has made numerous contributions to the literature of pathology and biochemistry. His hobbies are amateur photography and writing fiction. He is a student of scientific literature chiefly concerned with pathology, physiology and biochemistry.

* * *

GEORGE FREEMAN HELWIG, M.D., Topeka, Kansas, was graduated from the University of Kansas School of Medicine, Kansas City, in 1932. He was formerly a staff member of St. Francis, Stormont, and Christ Hospitals, and is at present a lieutenant (senior grade) in the U. S. Navy.

* * *

HENRY CADAN, M.D., Brooklyn, N. Y., was graduated from the University of Arkansas School of Medicine, Little Rock, in 1925. He is at present director of the department of physiotherapy of the Cumberland Street Hospital, Brooklyn, and is doing research work in physiotherapy of the eye. His hobbies are hunting and inland fishing.

* * *

KENNETH M. CORRIN, M.D., Wilmington, Del., received his degree in medicine from Jefferson Medical College, Philadelphia, in 1926. He is neurologist to Wilmington General and Delaware Hospitals, and an instructor in psychiatry at Jefferson Medical College. His practice is limited to neurology and psychiatry.

* * *

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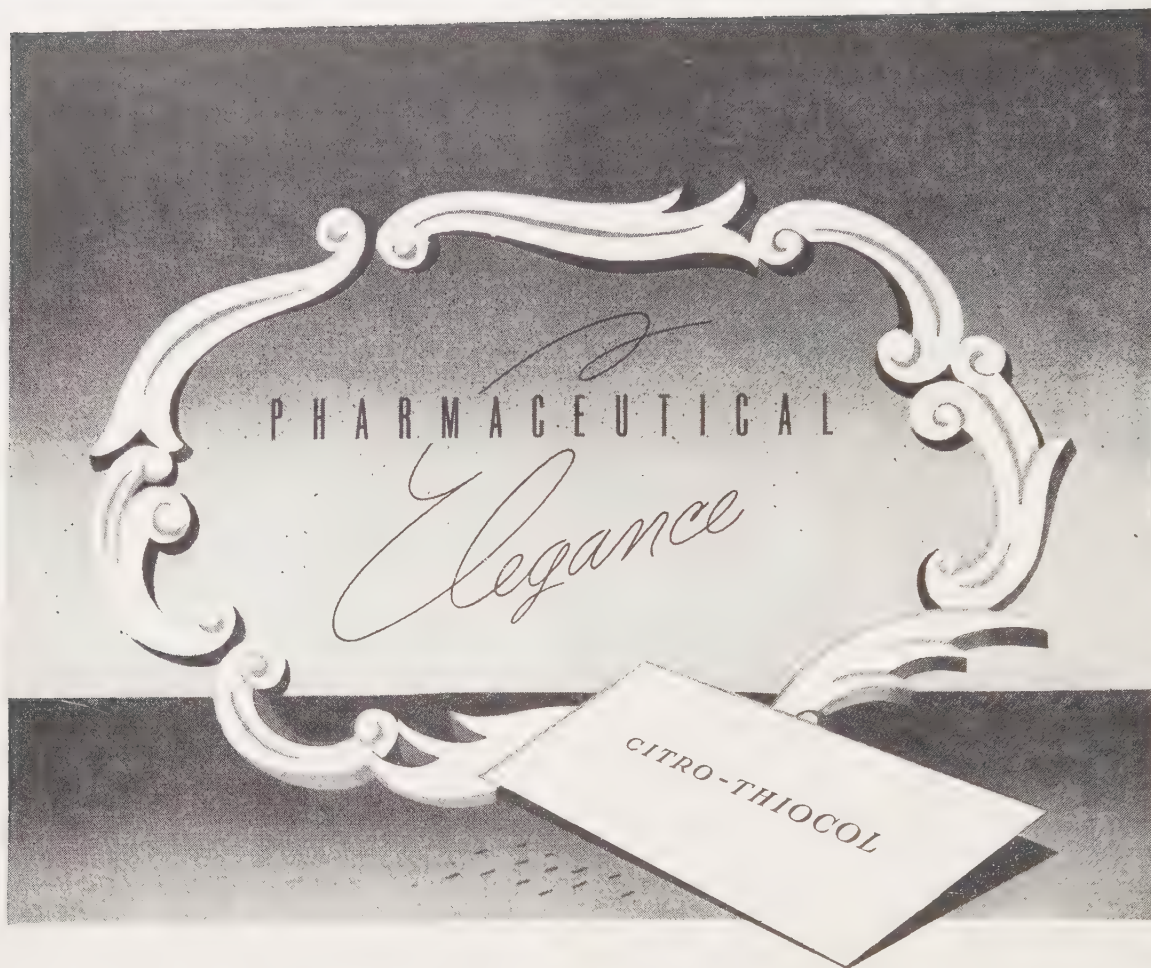
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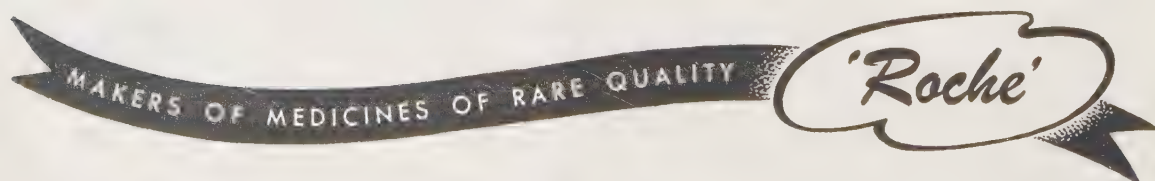
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WHOLE No. 2720

CONGENITAL COLOR BLINDNESS

HENRY CADAN

Brooklyn, N. Y.

This article advances no claims as to the cure for congenital color blindness. It is written for the sole purpose of calling to the attention of the medical profession the fact that constructive research may be possible in color blindness in order to rehabilitate that group of congenital color defectives who are prevented from pursuing those fields of endeavor in which they are best qualified.

The subject is timely, in view of the fact that the physical requirements in almost all the branches of military service demand normal color perception. Fortunately, the percentage of color blindness found at recruiting stations is low enough to prevent a serious shortage in our armed forces. Yet, because of this handicap, many men of otherwise perfect officer calibre are prevented from serving in those departments in which they would find themselves to be best qualified.

Congenital color blindness has probably existed as long as the human race. However, the first recorded case known to authors dates back to the *Philosophical Transactions* of 1777, and is that of a shoemaker who could not distinguish certain colors. The next best known case in the last century is that of the English chemist, Dalton, who was red-blind, and the first to study his color sense by the spectrum. The first who entered into a systematic study of this subject was Siebeck. He used colored papers and glasses, sometimes prismatic diffraction colors and colored worsted.

Although Siebeck covered almost the whole ground as far as the theoretical side of the subject was concerned, the practical side was untouched until George Wilson published a series of papers read before the Royal Scottish Society of Arts in 1855, under the title *On Railway and Ship Signals in Relation to Color Blindness*. In 1877 Holmgren published his work on color blindness and its relation to railroads and maritime conditions.

In November, 1880, the Council of the Ophthalmological Society of the United Kingdom appointed a committee to consider defects of sight in relation to public safety, with the result that among 18,088 persons at different periods of life and in various social positions, 4.76 percent of males and 0.4 percent of females were found to be color blind to some extent.

It is easy enough to define color blindness as that defect of the eye through which it is unable to distinguish between certain colors, while in other respects the eye is normal. The greatest difficulty arises when we undertake to classify the different kinds.

In May's *Diseases of the Eye*, the principal theories advanced to explain color vision and its derangements

are those of Young-Helmholtz, Hering and Edridge-Green.

The Young-Helmholtz theory assumes that there are three sets of color-perceiving elements in the retina, each of which, if stimulated alone, would give rise to a sensation of one of the fundamental colors, namely, red, green and violet, and that all other colors arise from a combination of these. With a defect of one of these primary perceptions, a color will be seen as if composed of the remaining two only. According to the color which is deficient, the patient is said to be red blind, green blind or violet blind.

The Hering theory is that the color sense depends upon the chemical changes in the three different visual substances in the retina, namely white-black, red-green and blue-yellow, by the decomposition and restoration of which substances the sensations of color are produced. According to this theory, color blindness is caused by the absence of one or two of these visual substances. If one is absent, the patient is either red-green blind (frequent) or blue-yellow blind (rare). If two are absent, nothing but the white-black substance is left, and the patient has total color blindness, everything appearing grey.

The Edridge-Green theory supposes that a photograph is formed in the retina by the decomposition of the visual purple in the rods. This chemically stimulates the ends of the cones, causing a visual impulse to be transmitted through the optic nerve fibres to the brain. It assumes that this impulse differs in quality according to the wave length (color) of the rays of light producing it. There is a special centre in the brain to distinguish these differences.

Regardless of the theory one accepts, it is generally conceded by the various authors that color perception depends, therefore, on three vital factors:

1. A photochemical substance in the retina, which may be the visual purple, or closely associated with it;
2. the afferent nerves, which convey the impulse through the optic nerve to;
3. that area of the brain cells, probably the cuneus, whose specific energy is for us identical with a sensation of color.

We conclude from the foregoing, therefore, that the retina is only the selecting organ, while the brain alone is the perceiving one.

With regard to photochemical substances, it must be admitted that they are only hypothetical. But, as we have already found one substance in the retina that is very sensitive to light, i.e., the visual purple, we may well suppose that there are other chemical substances yet to be discovered by actual experiment. Perhaps we may find that the visual purple itself plays an

important part in color vision, as suggested by Ebbinghaus.

Since visual purple consists of rhodopsin and iodopsin, which two substances can further be identified as a protein and vitamin A. Deficiencies of vitamin A, therefore, could play an important part in defective color perception. It has never been established just where the defect lies in congenital color blindness. Opinion is divided as to whether the defect lies in the retina or in the brain. Because of such a divided opinion, I decided to attack the problem empirically, using any therapy which, in my opinion, would aid in correcting the defect in the retina or in the brain.

1. Vitamin A, already mentioned, is a factor in the visual purple metabolism.

2. Vitamin B complex, although not clearly established, is a factor in nerve tissue metabolism.

3. Iodine, to stimulate the general body metabolism and because of its antisclerotic effect.

4. Electrical stimulation in the form of low frequency-low tension currents, the physiological effects of which produce a circulatory enhancement, thereby accelerating metabolism of the tissues to which the current is applied. There is also an increase in the neurogenic response. The low frequency-low voltage currents directly stimulate the motor and sensory nerve endings.

In the case of stimulation of the eye, the following objective and subjective results would occur:

(a) A contraction of both the voluntary and involuntary musculature in the area of the electrode.

(b) A conductivity to the brain of the various nerve sensations. When applied to the eye, a patient experiences a sensation of burning, heat and light-flashes with each make and break of the current, especially marked when interrupted faradism is used.

Because of the seriousness of the undertaking to rehabilitate rejects for defective color perception, I felt that those who could differentiate the primary colors, but not the shades of color whose luminosities were fainter, would be most suitable for experimentation.

There are many rejects of the so-called red-green blind class who can distinguish primary color, but who fail in distinguishing the numerals or characters in the pseudo-isochromatic charts of Stilling, or the charts originated by Ishihara.

Forty-five patients suffering from mild red-green blindness were treated. After six to fifteen treatments, thirty-five passed a re-examination in various branches

of military service, having previously been rejected because of defective color perception. Two patients improved, although not sufficiently to be judged normal. Eight patients discontinued after one or two treatments.

On re-examination of those patients previously rejected by the examining physician, all standard methods for detecting color blindness were used. The methods used included the Edridge-Green lights, the worsted yarns and the charts of Stilling and Ishihara.

Method of Treatment

1. Seventy-five thousand units of vitamin A daily by mouth.

2. Subcutaneous injections of one-half c.c. of vitamin B complex plus additional vitamin B complex by mouth.

3. Five drops of tincture of iodine by mouth, once daily, during the course of treatment.

4. Low voltage-low frequency therapy, consisting of five minutes of interrupted faradism, and ten minutes of sinusoidal current to each eye and to toleration.

5. An intensive study of colors and color patterns during the course of treatment.

The attempt in the above treatment was first to correct the metabolism of the color substance in the retina and, secondly, to attempt an education of the color perception area of the brain.

Before commencing treatment, an ophthalmoscopic examination of the eye should be made. Arteriosclerosis and vascular diseases contraindicate treatment by electrotherapy because of the increase of the circulation and increase of local pressure of the blood in and around the area of the eye during the course of treatment. Fortunately, the age group applying for treatment rarely showed vascular degenerative changes.

In view of the fact that the subjects of my experiments have been of such recent origin, it is impossible to prognosticate at this time as to just how long the improved condition will sustain itself. However, those subjects who were found to be normal in December, 1941, were re-examined in July, 1942, and still showed normal color perception.

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11 PLAZA STREET

CONGENITAL ANORECTAL MALFORMATION*

J. F. SAPHIR

New York, N. Y.

Bodenhamer, in 1860, in an extensive and exhaustive report, showed that anorectal malformations are present in one in every ten thousand infants. Those with abnormal openings into the bowel live, and in time are brought to the hospital or the physician because the condition is a puzzling one. Complete imperforation of the anus or rectum causes death in a few days, unless relieved. The rarity of the condition prompts me to present the following case.

At the Atlantic City meeting of the American Proctologic Society, May 25, 1925, I reported a number of cases of congenital malformations of the rectum and anus. Since then I had not come across a case until December 18, 1941.

On this date, Dr. S. Ratowsky, of New York, referred to me a male baby, R. S. S., eight weeks of age, one of a pair of twins. The other twin was a female, and was born and still is perfectly normal. Delivery was normal, and the patient weighed six and a half pounds at birth, was nursing well, was not vomiting,

*Presented at the annual convention of the American Proctologic Society, held in Atlantic City, June 1942.

and the bowel movements were very frequent but of small amounts, of fair consistency and of normal color.

One week previously, the child began to strain severely in an effort to move his bowels, the abdomen became distended, and the child began to sleep fitfully and wake up with a start and strain. The mother tried to give an enema, but found it impossible to locate an opening to insert the small tube, or even to insert an infant suppository. The doctor was sent for and he referred the case to me.

Examination revealed a well nourished and well developed infant about eight weeks old. Inspection of the anal region disclosed a small pin point opening on either side of a distinct band fibrous in texture. It seemed as if the perineal raphe extended from the scrotum and continued back to the coccygeal region, dividing the anus into unequal halves, which allowed for the passage of fluid feces. This band was about two inches in length and the thickness of a lead pencil.

A diagnosis of "partial occlusion with atresia of the anus" was made, caused by a congenital fibrous band running anteroposteriorly.

The child was taken to the Manhattan General Hospital the following morning, when under the influence of one-half percent novocaine solution, local anesthesia was produced by the injection of five minims anteriorly and five minims posteriorly, without the addition of adrenalin.

The band was snipped off at either end, and the

bleeding vessels tied. The anal opening underneath proved to be very small, having just a pin point opening. A posterior proctotomy was performed, the incision being made through both the external and internal sphincter muscles. The bleeding vessels were tied, no suturing was done, the edges were trimmed, and the parts were allowed to heal by granulation. The incision was made perpendicular to the muscle fibres to prevent incontinence. A finger was inserted to make sure that there was enough room, the parts were greased with sterile vaseline, a square of gutta percha was introduced and a small packing of vaseline gauze was inserted into the anus to prevent direct contact of the gauze and the wound, and subsequent growth of granulations into the gauze mesh. This was held in place with a muslin bandage.

The child left the hospital in the afternoon of the same day. He seemed to feel comfortable and showed no untoward effects. The following day the dressing was removed, without any bleeding or apparent pain, and the child had a copious bowel movement. He was then seen by me every other day, when I introduced my finger to break down any too rapid granulations, and to assist in keeping the anus properly open.

The child has greatly improved, has gained in weight, has excellent daily movements, and when last seen by me about a week ago, was in excellent condition with a good normal looking and very useful anus.

321 WEST SEVENTY-EIGHTH STREET

THE NUTRITIVE VALUE OF CANDY BARS

Their Importance in the Wartime Diet as an Energy Food

FREDERIC DAMRAU and MILTON A. LESSER

New York, N. Y.

Candy has long ceased to be a luxury. Rather, it has become recognized as a quickly utilized energy food with an established place in the diet.

Seldom a part of the formal daily meals, candy bars nonetheless have proved an essential aid to the drive and energy which have made the American people leaders in the world of production and have given them the highest standard of living on earth. Never in our history have this drive and energy been more essential than now.

Carbohydrate Requirements

With respect to distribution of foodstuffs in the normal diet, physiologists and nutritionists have held that 100 Gm. protein, 100 Gm. fat and 500 Gm. carbohydrate constitute the proper proportions for the "average man" (Starling, 1). This diet provides roughly a value of 3,300 calories. Moleschott's (2) 2,980 calorie diet provides 130 Gm. protein, 40 Gm. fat and 550 Gm. carbohydrate; Voit's (3) 3,053 calorie diet, 118 Gm. protein, 56 Gm. fat and 500 Gm. carbohydrate.

To meet increased energy demands, it is generally agreed that the added calories should be derived from the carbohydrates, which are most economical and most readily utilized by the body in the production of heat and work. To quote the U. S. Department of Agriculture yearbook on *Human Nutrition*, "it has

long been recognized that carbohydrate is the preferred fuel for muscular work" (Mitchell, 4).

A Quick Energy Lift

The American worker has learned and science has corroborated that the ingestion of readily utilized high calorie foods, such as is afforded by candy bars, provides the between-meal lift that combats fatigue, increases efficiency, reduces accidents, and, in general, raises morale. Industrial management recognizes this fact and encourages measures that will supply workers with candy bars when needed.

A simple conception of fatigue, according to Dill (5), is based on the idea that the physiological fuel supply fails to keep pace with energy transformation demands. It is his opinion that, when an abundant supply of carbohydrates as contrasted to fats is available, not only is work performed more efficiently but a higher level of energy exchange can also be attained.

When the available carbohydrate supply in the body is depleted, as indicated by the blood sugar concentration, Haggard and Greenberg (6) have observed that muscular exertion cannot be sustained and there is a feeling of fatigue. In extreme instances even collapse may occur. Hence the average person finds it expedient to eat between meals. This habit affords a feeling of well-being, some relief from tiredness and increased

productivity. While there are some individuals who are not so benefited, there are others for whom between-meal feedings are necessary to prevent marked fatigue and loss of productivity.

Sugar for Relief of Fatigue

The value of carbohydrates to avert fatigue has long been recognized. Thus, back in 1918 Sandwall (7) stated: "Sugar is not only one of our best energy-producing foods (experiments having proved that about half an hour after it is consumed sugar is transformed into muscular energy), but it has also been found to be of great value in delaying fatigue." These properties, it was also noted, together with the fact that sugar is a concentrated, easily transported food, have made it a valuable part of the diet of individuals who do severe muscular work. Thus, sweet chocolate is a favorite food of Swiss guides, large quantities of sweet foods are consumed by lumbermen, while soldiers are better able to withstand the strain of their strenuous life when sugar is supplied in addition to the regular diet.

Particularly pertinent was Sandwall's statement with regard to the value of candy: "A word might well be said about candy. It is made up chiefly of sugars in various forms, and should be considered a food."

Since sugar is more simply digested than starch, this authority expressed the opinion that sugar is a more valuable food to use in times of great physical exertion and hence a necessary food in the soldier's diet.

It is a matter of common observation to anyone who has ever visited an army canteen or exchange post that soldiers are large consumers of extra calories in the form of candy bars. Despite the fact that the army ration provides a liberal allowance of sugar, jam and syrup, Gessner (8) found that even under peacetime conditions soldiers did not appear to be satisfied and bought large quantities of candy, ice cream and other sweets. In this respect, the modern soldier is rather more fortunate than his predecessors. McLester (9), former president of the American Medical Association, recalls seeing American soldiers in France stand in line for an hour or more just to buy a small box of candy.

Candy in Army Field Rations

It is now a matter of common knowledge that the carefully prepared, scientifically balanced, thoroughly tested army field rations, such as rations "C", "D" and "K", contain liberal quantities of candy in one form or another; e.g., dextrose tablets, hard candies and candy bars. Lump sugar is likewise included in rations "D" and "K" (Sonnedeker, 10).

As McLester (11) recently remarked, manifold difficulties were encountered in devising suitable rations to meet the requirements of strenuous mechanized warfare. Not only must such food be palatable and nutritionally adequate, but it must have no thirst provoking or other undesirable properties. It must also be stable and compact. Chocolate bars, appropriately reinforced with yeast and vitamins, were first considered as being especially suitable, but certain disadvantages became manifest on further tests.

Chocolate, however, has been retained as a supplement and is now a major constituent of the type "D" or emergency ration, along with sugar, skim milk powder, cocoa fat, oat flour, vanillin and vitamin B₁. Put up in four ounce bars, this candy is intended for

use in the field when no other food is available (Sonnedeker, 10). Each bar provides about six hundred calories and, according to Logan (12), this bar may also be used as part of the "C" ration or issued daily as a confection to front line troops.

A two ounce bar of ration "D" is also included in the supper unit of field ration "K", developed especially for parachute troops. Strenuous field tests on men picked at random and carefully checked with regard to general physical condition, weight and blood sugar tolerance, proved the value of this special ration with respect to both nutritive efficacy and palatability. Sugar tolerance determinations indicated that, if anything, the men given "K" ration were in better condition than those who subsisted on other types of ration, including the regular garrison ration (13).

The emphasis on readily utilizable carbohydrate becomes at once evident when it is realized that soldiers in the field or engaged in outdoor activity require from 4,500 to 5,000 calories. If carrying a pack, this requirement rises to from 6,500 to 8,000 calories. In cold climates this need may rise to 9,000 or even 10,000 calories (Epstein, 14).

Why Children Crave Candy

The fighting ration used by the United States Army during the last war, according to Sansum (15), contained four parts of carbohydrate to one part of fat. Indeed experience has taught that such high carbohydrate diets produce the most efficient soldiers. "Children," Sansum (15) wrote, "may very well need a similar ratio. I believe that their desire for extra sweets may be a natural craving for the foods which they need." Among the several measures for attaining this ratio for children, he advocated the use of plain candy after meals. Very much the same view was more recently expressed by Fishbein (16). He voiced the opinion that the child's desire for sweets may be simply the natural expression of the cellular requirements for carbohydrates, either because of fatigue or because the body is growing rapidly.

Indeed it is quite fully recognized that, in addition to the requirements for maintenance and activity, children need an extra supply of calories for storage in new body tissues as they grow (Morey, 17). In their recent discussion on the medical importance of calories, DuBois and Chambers (18) stated that the food allowance for a child of over twelve years should be, in general, about the same as that required by an average adult, or more than 2,500 calories daily. However, they point out that an active fifteen or sixteen year old boy may utilize as much as 4,000 calories per day.

Variations in Caloric Requirements

The marked variations in individual calorie requirements is clearly apparent in the tables of the Recommended Daily Allowances for Specific Nutrients presented by the Committee on Food and Nutrition of the National Research Council (19). While these figures take into consideration such variables as age, sex and degree of activity, it must be remembered that calorie requirements of an individual may vary not only from day to day but within the same day as well.

In this connection it is interesting that Booher (20) should have stressed that in assessing energy requirements one should not overlook the fact that ordinary

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THE ARMY AND VENEREAL DISEASE CONTROL*

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Carlisle, Pa.

The attitude of the Army Medical Department towards venereal disease is not different from that pertaining to any other group of communicable diseases. These and any other disabling diseases must be prevented where possible and, when they occur, cured with as little loss of time as may be. Disease is expensive—militarily expensive, and it is the duty of the Army medical officer to prevent it and keep the men well. The motto of the Medical Field Service School at Carlisle Barracks is "To Conserve Fighting Strength". Those words sum up the task of the Medical Department.

We are not concerned with the moral side of venereal disease. That is a matter for others to consider. But we are vitally concerned with the morale side, for diseases in general and venereal diseases in particular reduce morale. Morale is that intangible something which makes the good fighting man. It is the temper of the Damascus blade. A soldier with high *élan* or morale will win through to victory. A soldier with poor morale cannot win. And the same is true of an army made up of soldiers with good or poor morale.

The problem is far from simple, as you do not need me to tell you. We cannot meet it without the help of civil authorities backed by the weight of public opinion. You, and all of you, must help us, for it is your fight, as well as ours. It is your army that we seek to protect, your soldiers who must be kept free from disease in order to carry out their mission. That mission is the defense of you and our country. America is not an abstract concept. It is a body of human beings.

Modern armies depend on modern weapons, on new tanks, new aircraft, new guns and the rest. But most of all it depends on good soldiers. Anything that makes for better soldiers makes for a better army. A sick army, like a sick soldier, is a discouraged one. And a discouraged army never wins.

Sometimes even poor soldiers can fight well under the stress of immediate necessity or danger. But it takes a finely disciplined army to stand up when fighting is not imminent. Then it is that morale must be supported. Then it is that the soldier must be pro-

tected from the multitude of grasping and unscrupulous people who batten on his loneliness, his youth or his credulity.

Venereal diseases are transmitted to well men and women by contact with diseased persons of the other sex. Human nature being so prevalent, as Mark Twain once said, and the biological urge being what it is, it is idle to say that we need not concern ourselves with the problem of venereal disease control, because such maladies are contracted only through sin. Again, it is not the moral side that we military surgeons must consider. Even now, despite all that has been said to the public as to the nature of venereal disease and the way to prevent it, we occasionally hear talk of its being a just punishment for wicked conduct. That many innocent persons, including babes unborn, may be infected likewise is beside the point.

It is common knowledge that the greatest source of venereal disease among soldiers is the prostitute. In an incredibly brief time one infected woman with unrestricted opportunity for sexual contact with soldiers can spread infection to a terribly large number of victims. But she is not alone. She and those who support her and share her wages are not the only ones involved in the pernicious chain of events. Illicit sellers of alcoholics and drugs, gamblers, and the rest enter into the sordid picture.

Were there no such group of diseases as those transmitted by sexual contact, the Army would not be so alarmed about prostitution. True, our chaplains would do their best to keep men from it, but physical disease would not have to be considered, though even so there would be a psychic side to be considered.

In the Army we went through a process of evolution, so to say, not unlike that known in the civil community. At first there was the attitude on the part of some officers in authority that "boys will be boys", that men who do not indulge in sexual excess will not fight. On the part of others it was said that venereal disease is a punishment by Providence for sin, and the wages of sin is death, or at least disability. Slowly medical officers were able to convince those in authority that venereal diseases are communicable diseases, dangerous communicable diseases, which can and should be pre-

*Address delivered at the Third Pennsylvania Health Institute, Harrisburg, Pa., September 28, 1942.

vented by all known means. The arguments that I have just mentioned, that sick soldiers do not fight as well as healthy soldiers, were also used. At length it was generally conceded that such being the case the service should give complete support to all methods of preventing venereal disease, just as already full support was being given to treating cases of such maladies.

The words "syphilis" and "gonorrhea" could not be mentioned openly or in print that might be seen by the laity. They were the names of "shameful" diseases. Just what a "shameful" disease is, has not been shown. As a boy I remember that one did not say openly that somebody had "cancer", or even "tuberculosis" ("consumption", we called it). These dread words were whispered, and there was always the implication that moral turpitude was in some way involved—perhaps the misconduct of some ancestor, if not that of the patient himself. The Army finally came to treat the subject in a calm way, and no longer to consider the topic shameful or funny (to those not directly concerned). Once that new attitude had come into being we were able to go forward in the fight against venereal disease.

I do not mean to say that the Army did nothing to keep down venereal disease up to the time that they were considered in the same light as other communicable diseases. Far from it. From the earliest days of our country we have waged war in the Army against such infections. In 1778 the Army directed that any soldier admitted to a hospital for venereal disease would forfeit four dollars of his monthly pay. If an officer, the forfeiture was ten dollars. The money thus derived was used to provide shirts and bedding for the sick in hospital.

In 1814 it was announced that *all* pay would be forfeited by men while under treatment for venereal disease. This was almost a century before the application of our present law of similar nature.

In 1863 the Union commander at Nashville, Tennessee, in the War Between the States, attempted to regulate prostitution. Futile though we now know regulation of prostitution to be, it was at least a step in the right direction at a time when little else was being done.

Strong in people's minds is the tradition of how typhoid fever mowed men down in the Civil War, when modern sanitation was unknown. Yet there were nearly as many cases of syphilis (73,382) as of typhoid fever (75,368)! More than half as many men were admitted to sick report on account of venereal disease (169,215) as for wounds (230,018). These figures are for the Union Army alone, and show that the Confederate bullets were not as deadly as microscopic organisms of disease.

In 1899 there was begun in the military service a program of education in sex hygiene and the nature of venereal diseases and their prevention. At the same time there was begun regular physical examination of our troops in Cuba, the Philippines and in the United States.

In 1902 came the recognition of the responsibility of the company commander for the control of venereal disease. This was an important milestone. Theretofore efforts at venereal disease control had been made by individual medical officers, with success varying and depending on local conditions, the support of commanding officers, and the attitude of the civil com-

munity. The new policy gave the War Department definite responsibility in the matter.

In 1909 there was a great increase in the education and recreational programs in the Army. Physical examinations became a regular procedure and chemical prophylaxis was introduced. It was still in the era of experimentation, as it were, and we were constantly searching for efficient methods. Chemical prophylaxis was found to be effective when properly carried out, but there was no way to insure its being used. The old "K packet", as it was called, a small quantity of chemical prophylactic agent given to the soldier with directions to use it as soon as possible after exposure, was efficient in direct ratio to its proper use. But its proper use could not be enforced.

In his Report to the Secretary of War, the Surgeon General said in 1910: "The venereal peril has now come to outweigh in importance any other sanitary question which now confronts the Army, and neither our national optimism nor the Anglo-Saxon disposition to ignore a subject offensive to prudery can longer excuse a frank and honest confrontation of the problem. There is no reason to think these diseases beyond reach of preventive medicine any more than other contagious diseases, and their immunity from restriction must be attributed to the public disinclination to discuss them and legislate concerning them. It is now believed by most sociologists as well as sanitarians that the evil being primarily a social one can only be reached by a propaganda of public discussion and education, and that education in sexual matters and in the danger of venereal disease should begin with the young and be carried on by means of all agencies of popular enlightenment".

In 1911 the experimental era, as it has been called, came to an end and in 1912 there was established a comprehensive program of several phases. There was begun systematic instruction in sex hygiene and venereal disease prevention; compulsory chemical prophylaxis after exposure, with a penalty for avoidance or neglect; physical examinations twice each month; confinement or segregation of patients and those infected; forfeiture of pay while unable to perform duty because of venereal disease. It was further ordered that any time lost by a soldier on account of a disease due to his own misconduct (this includes alcoholism and a few other conditions, as well as venereal disease) had to be made up at the end of the enlistment.

With the entrance of the United States into the World War and the introduction of selective service, there came a shock to the whole medical profession, including the Army Medical Department. No one had any idea that venereal disease was so widespread. The truth was that then for the first time did we have any set of statistics on which to base a concept as to the amount of venereal disease in the country.

The true medical condition was learned by our study of a goodly cross section of the manhood of the nation in the twenties. The findings were alarming indeed! Over sixty thousand of the first million men physically examined were rejected because of syphilis or gonorrhea!

At once the Army intensified its administrative efforts at control of venereal disease. We were ably and loyally assisted by the American Social Hygiene Association, the Interdepartmental Social Hygiene Board,

the U. S. Public Health Service (which had charge of extramilitary sanitation activities). All possible was done to restrict the sale of liquor, and prohibit houses of prostitution near camps and military posts. State and local health officers cooperated with us.

In the American Expeditionary Forces General Pershing ordered: (a) education in sex hygiene and the nature and prevention of venereal diseases; (b) prophylaxis; (c) physical examinations; (d) repression of prostitution; (e) reporting of sources of infection, with dispensary treatment of infected civilians, where possible; (f) court martial of men who contracted venereal disease; (g) treatment of venereal diseases at the front, thereby removing any possible temptation of men to become infected and so get sent to the rear.

General Pershing's program did much good, and was far in advance of that of any other country in the World War, as far as we have been able to learn. Yet, and despite all this, seven million days of service were lost! Think of that! A total of 338,746 soldiers were treated for venereal disease. That is more than twenty-three divisions—enough to turn the tide of almost any war. Yet, remember that the American Army was freer from venereal disease than any army in the world! Surely nobody can know of these data and not realize that venereal disease is a major military problem.

I must pause to insist that you do not misunderstand my references to the great number of cases of venereal disease with which the Army has had to cope. Venereal disease is less, not more, prevalent in the Army than in corresponding groups in civil life. The United States Army was the first American body to record venereal disease statistics. Ours go back to 1819. So do not let our better records make it appear that we have a higher incidence of venereal disease in your Army. Remember that the Army carries on a relentless war against venereal disease. The rate has been reduced from 175 per thousand in 1904 to about thirty-four to thirty-six. It has never been above fifty since 1926. But we must remember that rates always rise in time of war, because these diseases are harder to control at such times. The incidence in the military service is similar to that in other groups of individuals. In the first World War—and the same is true now—men working in factories, in vital industries are no less concerned. The Army is interested also in the health of the men behind the men behind the guns, as a popular song puts it. Every year industries must waste millions of dollars as a result of venereal disease. Inefficiency, accidents, and man-days lost are the result. These contribute to the waste and waste can lose us the war.

We are now in the second World War with our ancient enemy venereal disease to be considered as one of the most dangerous of our opponents. The spreading of venereal disease, as a prominent police officer recently said, is one form of sabotage. Prostitution is a form of Fifth Column activity. We must fight the enemy within our gates as well as those beyond the walls. Your armed forces can fight the enemy outside, but without your help they cannot cope with the inside enemy. To accomplish this, popular education is necessary. It has ever been a desirable consummation, but now it is an element of national defense.

A soldier who has contracted venereal disease re-

quires seventeen to twenty days for cure, that is, seventeen to twenty man-days lost! This, until recent advances in modes of treatment, was thirty-five days! All waste, sheer waste. Unfortunately, despite a popular writer's statement in one of our leading magazines, we cannot count on anything even remotely resembling a "one day cure for syphilis". That such statements have been given the public may cause great harm. After all, why should we concern ourselves unduly over any disease that can be cured in a single day? Even a common cold cannot be so quickly cured, and one of the ancient concepts that we have had to fight has been that a case of gonorrhea is not worse than a bad cold.

Today we teach that chemical prophylaxis if immediately and intelligently used is almost completely effective. We try men now by court martial for *concealing* venereal disease.

Prostitution is an ancient evil that has caused armies serious trouble through the centuries. One could cite numberless examples of recognition of this. Prostitution has, however, undergone certain changes which make it more dangerous to armies than ever. As armies have become mechanized, prostitution has become motorized. Trailers which can be brothels on wheels follow and prey upon soldiers. Perhaps the present reduction in motor fuel may make itself felt in this regard. One must wait and see. But be that as it may, prostitutes will be prostitutes—and all prostitutes are diseased. Venereal disease is preventable—but not if prostitution be allowed.

It is the duty of the Army, just as it is of our sister service the Navy, to control its own personnel, and areas within military reservations. In this we have a record of effective performance. Troops show, however, about the same record as the community in which they live. So community health and disease control cannot be foreign to us.

I shall not discuss in detail the general methods in vogue in combatting venereal disease in general. The U. S. Public Health Service coordinates them in the nation-wide work of state and local authorities. We know no scientific procedures for the prevention and treatment of venereal disease in the Army that differ from those available to the general public. But the administrative application of accepted principles varies with the nature of the routine lives and duties of those concerned.

Pennsylvania, like other Eastern States, has been declared a Zone of Defense by the President of the United States. We are now at war for our very existence. The Commanding General of the Third Service Command has power to enforce any and all measures that will increase our security, both as to individuals and communities. The May Act gives the Army powers of enforcement when civil authority cannot or does not act. But we do not want any more jobs. We have enough and to spare already. We do not care who looks after civil venereal disease control so long as it is done. We believe that Americans not in uniform have faith in their armed forces, and we of those armed forces have faith in you. "United we Stand, Divided we Fall" is the motto of my native State of Kentucky. Those words apply equally well to the war in which we are engaged, not the least battle of which is that against the ancient enemy, venereal disease.

CARLISLE BARRACKS

ENDOCRINE THERAPY IN DEMENTIA PRÆCOX

EDWARD HUNTINGTON WILLIAMS and CLIFFORD A. WRIGHT

Los Angeles, Calif.

In preceding articles (1) of this series, we have presented evidence that when endocrine abnormalities are associated with abnormal mental states, treatment directed toward correcting endocrine dysfunction frequently is followed by an improvement in the psychotic condition. It is the purpose here to emphasize the conception that there is something more than a casual relationship between psychotic states and endocrine dysfunction in certain cases of the dementia præcox type.

Since this "psychoendocrine"¹ conception will appear as novel to many readers, it seems advisable to give the general subject brief consideration before beginning more specific details.

"Physiology without the hormones is not physiology at all. Since pathology is just physiology out of balance, an extension of the generalization is warranted—pathology without the hormones is likewise incomplete pathology. Since the hormones determine health, they must likewise play an important rôle in disease processes generally." (2)

Naturally certain hormones are more concerned with special abnormal conditions than others, such as the adrenal cortex hormones in Addison's disease. And, undoubtedly, as our knowledge increases, there will be found many other instances of specific action, or, at least, conditions in which the arrangement or relative proportions of the hormones coincide with the clinical picture.

The practical clinician, therefore, has the complicated problem of determining, 1, just what part the dysfunctioning endocrine glands may be playing in this particular case, if any; 2, which glands are responsible; and 3, what is the best practical treatment? It is certainly an expansive field for trained intellectual effort.

The realm of psychosomatic pathology is complicated and elusive. There are no specific tests for determining mental states, few available tests for determining exact glandular dysfunctions in such cases, no way except by clinical experience and experiment of finding that the abnormal hormone arrangement is responsible for the abnormal psychic state, or vice versa; no way of making sure at which condition treatment should be directed; and finally, usually no specific therapy available when a decision is reached.

Not an encouraging prospect for the budding clinician—or for his older confrères. But here are cases requiring treatment, and here are the various methods of treatment, old and new—and mostly empirical. So about the best the clinician can do at present is to dip deeply into his knowledge and experience, use his best judgment in making his diagnosis and in choosing his weapons, and go ahead. For of course he must do something; he can't stand idly by waiting for the development of specifics.

It has been pretty definitely determined that there is an abnormal sex hormone arrangement in a high percentage (if, indeed, not all) of dementia præcox cases. And

the conception that there is a close relationship between sex hormone dysfunction and the symptoms of dementia præcox has been under intensive observation for the past twenty years. Meanwhile, both theoretical and clinical endocrinology and psychiatry have made giant strides forward, advances that have tended to confirm rather than discredit our ideas of interrelationship between certain mental abnormalities and endocrine dysfunction. Let us consider briefly some of the normal and abnormal hormone patterns, particularly in the sex hormone group.

Sex Hormone Patterns in Dementia Præcox

There are, of course, physiological patterns—that is, proportionate amounts—of hormones, and pathological patterns. And as regards the sex hormones (the male and female elements, and the gonadotropic with the thyroid and adrenal cortex participating in certain cases) there is a physiological ratio in normal individuals, which, roughly stated, is that in the normal male, the male element (androtin) predominates, while in the normal female the female element (estrin) is dominant. And further, when this normal ratio is disturbed in an individual—when the proportions are so switched about that the male has too little of the male element or too much of the female, or the female has too little of the female element and too much of the male element—when this type of abnormal pattern is present, there is almost always some kind of abnormality in the psychic sphere of the individual. Just what type of abnormality this will be—whether dominantly in the sexual, the general emotional, the intellectual, or the physical, or a combination—cannot be predetermined by the assay. One cannot make a diagnosis from the assay alone, at least in the present state of our knowledge. But we do know that closely similar abnormal hormone patterns are frequently coincident with certain types of emotional reactions; that there is great uniformity in the abnormal type of endocrine patterns found in certain kinds of sex reactions, and that treatment directed toward adjusting the sex hormone abnormality tends to normalize the abnormal psychic trend. Like everything else in successful clinical medicine, it requires clinical knowledge, laboratory help, and trained common sense to achieve satisfactory results in this field—as in any other.

One of us (C. A. W.) was first to announce in 1935, (3) that homosexuality was always associated with sex hormone patterns distorted in a definite way, the female homosexual having proportionately too much of the male element and too little of the female element; and the male homosexual showing the reverse. And both of us have exhaustive records showing that most dementia præcox cases have somewhat similar, though not precisely the same, hormone pattern distortions. Generally speaking the homosexual shows an elevation in the amount of the opposite hormone and a depression of the homogeneous hormone—too much androtin and too little estrin in the female, and vice versa in the male—while the dementia præcox case usually shows only a deficiency in the one hormone,

¹The term "psychoendocrine" was coined by one of us and in 1926 our clinic was called the "Psychoendocrine Clinic", in which 69,500 patients suffering from neuroendocrine and psychoendocrine dysfunction were treated.

too little estrin in the female, too little androten in the male. Furthermore, deficiency in thyroid is characteristic of dementia præcox, but not so in homosexuality. And occasionally an adrenal cortex deficiency case exhibits dementia præcox mental symptoms.

With this knowledge at our command, it seems logical, or at least a possibility, that treatment aimed directly at correcting the sex hormone dysfunction in the dementia præcox case might help the mental abnormality. And in clinical practice such appears to be the case in so high a percentage of patients that it seems like avoiding the obvious to overlook it.

Selection of Cases for Treatment

Stated concisely, the effect produced is dependent upon the manner in which the endocrine preparation is administered, large amounts given intensely producing effects that are not produced when corresponding quantities are given over longer periods. In our experience this is particularly true in the case of estrogenic preparations. Thus, we have numerous cases in which one hundred thousand international units given every other day produce improvement quickly and in which twenty thousand international units given at the same frequency intervals over long periods have failed to produce any appreciable effects. Our records show so many (over one hundred) and such a high proportion of such responses that we believe they are worth more than passing consideration.

In selecting our cases for treatment over the past six year period, our standard was simply that the patients were individuals showing definite symptoms of dementia præcox of one type or another, and were so situated that it would be possible to receive the treatment in surroundings and in circumstances where the endocrine treatment would be properly administered, mostly in institutions specially adapted and accustomed to caring for such cases.²

The following are illustrative cases of different types giving the exact dosage and kind of endocrine preparation used in each instance.

Reports of Illustrative Cases

CASE I.—Miss M. G., an unmarried woman of twenty-three, had been showing progressive symptoms of the hebephrenic or mixed type of psychosis for about one year when she came under our observation. At that time she was under treatment in a sanitarium and had been getting twenty thousand international units of estrogenic substance three times a week for two months, but had grown steadily worse so that it was necessary to place her in a closed ward. Physically, she had gained twenty pounds in weight, had not menstruated for four months, showed cold, clammy hands, dermatographia, bradycardia, and other characteristic signs. Mentally, she was confused, delusional, sleepless, increasingly careless in dress, appearance, and table man-

ners, and was stupid most of the time. At other times she was destructive and impulsively threatening to those around her and her relatives when they visited her.

Under our supervision sanitarium care was continued, and the amount of estrogenic substance increased to one hundred thousand international units every third day (progynon-B ten thousand rat units, the equivalent of about one hundred thousand international units) with two grains of thyroid daily, and three grains of sodiumamytal as required. She showed some improvement by the end of the second week and was so greatly improved by the tenth week that she was able to return home and take up her usual mode of life under family supervision. Her estrogenic substance had been reduced to two thousand rat units every fourth day after the sixth week of the larger dosage. After returning home, she received that amount weekly at a physician's office for three months, her condition continuing to improve steadily. Menstruation had appeared just before her return home, and continued regular and normal thereafter.

At that time, circumstances made it impossible for her to continue hypodermic maintenance treatments, so an oral treatment was imperative. Obviously, a continuation of the same endocrine preparation that had proved so effective was indicated. But this preparation, if given orally, would not be effective unless perhaps in absolutely prohibitive quantities, as the stomach juices act so destructively upon such substances. If a means could be devised to get the progynon-B in its usual form past the stomach and into the upper intestine where absorption takes place, it should prove as effective, or approximately so, as when given parenterally.

Ordinary, so-called enteric coatings have not proved satisfactory for this purpose, and, of course, could not be applied to an oily liquid. But, through the ingenuity of a collaborator³ we were able to administer the endocrine preparation orally and with results that were quite satisfactory.

CASE II.—The patient, M. C., twenty-six years of age, a widow, ambitious, sensitive, well educated, came to us as a fully developed and typical case of dementia præcox of the paranoid type. One of us (E. H. W.) had observed the patient casually two years before and noted that she was showing paranoid symptoms at that time. Since then, her condition had grown progressively worse, reaching a condition which required State Hospital care. Meanwhile, she had been given various forms of treatment, including convulsive shock, this latter in what we inferred was a rather inadequate manner. In any event, her condition had not improved, and had developed into a characteristic delusional state, hyperactive and emotional, when we began treatment with ten thousand rat units of progynon-B given intramuscularly every third day, in sanatorium surroundings and the usual routine sanatorium care. She was given this treatment for six weeks; then the amount of the estrogen preparation was reduced to two thousand rat units, and continued until the end of the third month, when she was discharged from the sanatorium

²In the majority of our cases it would have been impossible to have had the desired laboratory work and the administration of the endocrine preparations except for the generosity of certain laboratories and manufacturers. Hormone assays and rechecks are expensive, and so are endocrine preparations. Moreover, it is essential that there be uniformity in laboratory methods used, and also uniformity in the kind of preparations administered. We are indebted to the Medical Diagnostic Laboratories of Los Angeles for generous and whole hearted cooperation in making the sex hormone assays and rechecks; to the Schering Co., of New Jersey, for their generosity in furnishing their endocrine products without stint or reservation; and the Ciba Pharmaceutical Products, Inc., of New Jersey, in making possible our exhaustive observations of the effects of hormone preparations.

³Grover C. Miller, inventor of the Seal-Ins Coating for tablets, devised a capsule into which the patient could herself introduce the daily dose of progynon-B, and by a simple manipulation seal the capsule so that it would pass through the stomach, and the contents be released for absorption in the intestine.

in a state of what appeared to be complete remission. She continued taking a maintenance dosage of two thousand rat units weekly for a month, at which time she took up her old work (secretarial, and most exacting) and has continued in this one year now. During this time she has taken the estrogenic treatments twice a month and her condition remains most satisfactory.

CASE III.—C. H., aged twenty-four, was a young man who had shown homosexual tendencies but whose dominant trends of symptoms were those of the dementia præcox type of psychosis (the case was so diagnosed by an official insanity commission). A sex hormone assay revealed an abnormal lack of the androsten hormone, about fifty percent. He was placed in sanitarium care, and given perandren, twenty-five mg. intramuscularly every third day for three weeks; and every fifth day for three weeks; and then once a week until the end of a total of three months' treatment. He showed marked improvement in all his symptoms by the end of the third week, and at the end of the third month enlisted in the navy. There, he made a good record for at least nine months, and apparently has continued to do so; but we lost track of him after war was declared.

CASE IV.—This case is an example of what seems to be an anterior pituitary involvement with psychotic symptoms of the dementia præcox type. The patient, H. P., a young man aged twenty-eight, had the physical signs suggesting congenital, or early life, pituitary dysfunction; an x ray of the sella showed low angle clinoids but not positively of the shut-in type; and the hormone assay showed a deficiency of the gonadotrophic hormone and very low androsten. He was married, but unhappily, and there was not sexual compatibility. He had a mild homosexual trend, but had never indulged or been obsessed by it.

On the basis of his symptoms and the hormone assay which showed a deficiency in both gonadotropic and androsten, he was given perandren, twenty-five mg. intramuscularly, every fourth day, alternating with gonadotropic hormone (pranturon, 150 international units) at the same intervals. He showed marked improvement after the first week of treatment, the annoying headaches having disappeared. In six weeks' time he was discharged and resumed his work, but it was not practical to continue maintenance treatment. After two months, however, his headaches reappeared and lack of confidence, his old enemy, was asserting itself to such a degree that he again sought relief, and was able to find work where he could receive treatment regularly. As his symptoms at this time seemed to indicate anterior pituitary rather than gonadal involvement, he was given gonadotropic hormone intensively for two weeks and then placed on a maintenance dosage of 150 international units weekly. And this has been continued for fourteen months now with entirely satisfactory effects.

An interesting type of cases, that sometimes show the characteristic symptoms of dementia præcox and that have an endocrine involvement, are those in which an adrenal cortex dysfunction is present and that usually respond to adrenal cortex therapy. Case V is the most striking example, both in symptoms and results, that has come under our observation⁴.

CASE V.—The patient, D. H., aged twenty-eight came to us as a case of the simple type of dementia præcox. He was a skilled mechanic, and the attack had come on rather suddenly although a recapitulation indicated that he had been showing some gradually increasing mental peculiarities for almost a year. He had had influenza three years before, at which time he had a puzzling hematuria for over a week—puzzling because there had been no kidney involvement discoverable at any time. But almost immediately after recovery from the acute attack, he developed an increasingly heavy growth of dark, coarse hair, with the "lumbar patch" seen so frequently in hypoadrenal cortex cases. He also showed the characteristic symptoms of hypoadrenia, as well as those of dementia præcox. He was placed in a sanitarium and given intramuscular injections of cortate, one cc., every other day, and no other medication. His response was so marked and his improvement so rapid that he was ready for dismissal at the end of three weeks; and at the end of the fourth week, he was able to go back to work at his old job.

Meanwhile, he was given what was intended to be a maintenance dose of an adrenal cortex preparation orally. But this proved to be an inert preparation—or, at least, at the end of three months he was "slipping" back toward his old mental state. Also (and most significant) his hairy growth had shown a marked and rapid increase. His blood pressure was 80/60.

He was again given the cortate twice weekly, to which he again responded quickly, so that he was able to return to work within a week, and has continued in the same employment ever since—now about eighteen months. The cortate was discontinued after one month and a potent oral preparation⁵ given daily and persisted in up to the present time.

This case seems to present pretty conclusive evidence that there was some very close association between mental symptoms and adrenal cortex dysfunction—not an infrequent occurrence according to the late William Engelbach. We will present a series of such cases, showing varying degrees of pathology, in another article.

Summary

These cases represent a fair cross section of our work with endocrine treatments of psychotic patients in whom there are unquestionable endocrine dysfunction.

We do not pretend to assert, or wish to imply, that endocrine treatment is the best form of therapy in all, or even the majority of dementia præcox cases. We simply suggest that in cases where endocrine dysfunction is present, this type of therapy may be used, alone or in combination, often successfully.

It has some advantages: It involves no danger to the patient; It requires less skill and experience on the part of the administrator than such treatments as convulsive shock; It may be used in combination with almost every other form of treatment; It has much to commend it as maintenance treatment; and In the milder forms of mental derangements or neuroses it may be administered as routine office therapy.

Adequate dosage is a most important factor in this type of treatment.

⁴This case was referred to in our article, Adrenal Cortex and Psychotic States, MEDICAL RECORD, Dec. 3, 1924.

⁵Seal-Ins Coated Tablets.

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MORGAGNI'S SYNDROME—HYPEROSTOSIS FRONTALIS INTERNA

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Numerous theories have been advanced to explain the etiology and pathogenesis of Morgagni's syndrome, but no agreement has yet been reached on the true nature of this rare syndrome. Before discussing the various hypotheses and surveying the literature we will present the report of a case which came to our attention.

Case History

M. G., sixty-five years old, white female, complained of fatigue, nervousness and lack of memory early in November, 1940. Her previous history showed that she had had a cholecystectomy and an appendectomy in 1919. Since then she had had stomach and bowel trouble with repeated spells of "belching and sour stomach". A radiogram of the gastrointestinal tract failed to reveal any organic lesion. The findings in a gastric analysis were essentially normal except for a slight increase in free hydrochloric acid.

On November 13, 1940, she began to suffer from headache and, according to her relatives, there was also a definite speech impairment, as she was unable to call objects by their proper names (memory aphasia). On November 16th, she went to Dallas, Texas, to deliver a speech at a convention of magazine agents, but on her arrival she became confused, and collapsed before delivering her speech. On the following day she became greatly excited and showed definite personality changes, with loss of memory, confusion, aphasia and signs of ideational apraxia. As she grew worse she became unable to articulate words or utter coherent sentences, except in rare instances. However, it was evident that the patient, at least in the beginning, was still able to understand spoken words, but was unable to give correct answers. Sensory perceptions, from what could be judged, were not impaired. Her pupils reacted to light and accommodation, and fundi appeared normal. On November 30th, the patient was admitted to Bell Memorial Hospital in Kansas City and was kept under observation until December 3rd, in the department of neurosurgery (Dr. Coburn). The following data have been given us by the courtesy of the staff of Bell Memorial Hospital.

Physical Findings

Positive points at the time of admission were as follows: The patient seemed to understand words spoken to her, but, judging from her response, she was unable either to remember or to express her thoughts. A sensory examination was impossible because of lack of cooperation. However, instantaneous withdrawal from painful stimulation led us to believe that her sensory perception was not impaired. The pupils reacted to

light, and the fundi appeared normal. Blood pressure was 170/80. There was a healed operative scar in the right upper quadrant. Reflexes were positive; Chaddock, Oppenheim and Gordon on the left leg, but no Babinski. There were no other pathological reflexes. The left biceps, triceps, and tendon reflexes were more exaggerated than those on the right. Urinalysis and blood chemistry examinations were made. No blood calcium was run; Wassermann and Kahn tests were negative. The spinal fluid showed no white cells, and a total protein of ninety-six mg. percent; colloidal gold 0001110000; Wassermann negative.

Blood pressure, taken the following days, while the patient was being given aminophyllin, oscillated between the previously mentioned high of 170 and 130. The aminophyllin treatment seemed very beneficial, because on December 12th, the patient was discharged as improved. She seemed fairly well oriented, and could answer questions and talk intelligently. However, this improvement did not last long, and she relapsed into her old confusional state when she returned home.

The diagnosis of Dr. Colburn and Dr. G. C. Franklin was angiospasm of intrinsic vessels of the left cerebral hemisphere.

The x rays report of the stereo skull, left lateral projection, was as follows: The skull wall was unusually thick. There was hyperostosis of the inner table of the frontal bone, extending back over the parietal and onto the vertex of the skull. There was unusual thinning of the bones in the temporal areas on both sides. On our P-A plate this was suggestive of destruction, on both the left and right sides.

We are inclined to consider the change that of hyperostosis of the internal table of the frontal bone. The apparent thinning may be simply due to contrast between essentially normal bone and the markedly thickened skull. We would like to consult with the clinician relative to the symptoms (Dr. A. H. Hinshaw).

The patient died February 13, 1941. An autopsy was performed the same day with the following findings:

Autopsy Findings

Skull appeared extremely thick, about two cm. average and very compact. The inner table of the frontal bone showed a bony overgrowth which gave the impression of a relief map, with irregular grooves and depressions, reproducing the negative aspect of the convolutions. The hyperostosis attained its maximum thickness in the region corresponding to the anterior part of Rolando's fissure but stopped sharply on both sides one or two centimeters from the superior longitudinal sinus. Parietal and occipital bones, though

thick, showed no bony overgrowth. The dura was adherent to the bone and could not be stripped off. The brain was edematous and just in front of Rolando's fissure it appeared depressed on both sides, though the left side was more marked, as if it had been molded to the hyperostotic zone. The frontal lobes were atrophic and the convolutions flattened by pressure. The parietal and occipital lobes were normal, with the exception of generalized edema. The vessels were moderately hardened, but no calcifications along their course were noted. The sharp difference between the frontal and parietal lobes suggested Pick's disease.

The pituitary gland was of normal size and appearance. The sella turcica was normal. Organs were explored, but no lesions of importance were found in them. Sections through the frontal lobes showed a marked atrophy of the nerve cells with here and there proliferation of glia cells. The vessels presented moderate arteriosclerotic changes. In the frontal region the atrophy was predominant and diffuse. No senile plaques of Alzheimer's fibrillar changes were seen. No significant changes were found elsewhere in the brain. Sections around the third ventricle and the basal ganglia failed to show any characteristic lesion.

Comment

The case we have presented shows three classical signs of Morgagni's syndrome: obesity, hypertension and mental disorders, coincident with internal frontal hyperostosis. The obesity was pretty well distributed about the trunk. Another sign of the syndrome, hirsutism, was not marked, though a few dark hairs were present on the upper lip.

Morgagni was the first to describe the syndrome that bears his name, and also first to point out the coincidence of internal frontal hyperostosis, obesity and virilism. Morel was the first to describe the syndrome *in vivo* by radiological examination of the skull. Stewart called attention to the fact that frontal hyperostosis was accompanied by mental disturbances. However, Morgagni had already remarked that the syndrome was accompanied by signs of cerebral arteriosclerosis.

Moore stated that the internal frontal hyperostosis was the anthesis of those diseases which showed deficiency of skeletal calcium as a part of their picture. He considered the syndrome as a disorder of calcium and fat metabolism; however, his views do not explain the presence of hirsutism, hypertension or mental disorders. The cause of the lesion, according to him, may be in the third ventricle, and in the parathyroids. He considers that the brain atrophy is the result of cerebral pressure, analogous to that following a long standing depressed fracture.

Stewart and Pende believe that disturbance in the hypophysis and in the region around the tuber infundibulum may take part in the genesis of the hyperostosis.

The hypothesis of Bertolotti occupies a very singular position. He believes that some relation exists between the intracranial osteophytic reactions of chronic sinusitis and various syndromes, such as encephalitis, and changes in the optic nerve. Bertolotti and Nicotra attribute the abnormal growth of bone to a chronic calcifying and ossifying pachymeningitis, induced by the spread of inflammation from a focal infection in the sinuses.

Reider described a case of Alzheimer's disease associated with hyperostosis frontalis interna. It is true that the mental disturbances present in Morgagni's syndrome closely resemble those of Alzheimer's disease, and the differentiation is impossible during life when there are no definite signs to make a positive diagnosis, without aid of x rays. The age and sex of the patient, the loss of memory, mental confusion, ideational apraxia and the complete incoordination present in Morgagni's syndrome may well fit into the picture of Alzheimer's disease. As a matter of fact, we are still in the dark regarding the real entity of Alzheimer's disease, and perhaps there is a greater affinity between the two syndromes than we are prone to admit at the present time.

Marelli proposes to call the overgrowth of bone endostosis, because the bone growth is really limited to the inner table of the frontal bone.

Nathan Roth, who recently reported a number of cases treated at Bellevue Hospital, considers that the neuropsychiatric signs and symptoms are not due to the effect of the hyperostosis on the underlying brain tissue, but are the result of other factors, such as cerebral arteriosclerosis, hypertension, etc. He advances an interesting theory to show that the formation of endostoses is dependent upon increased permeability of the hematoencephalic barrier and of the meninges. In cases where the increased permeability cannot be explained by hypertension or arteriosclerosis, the syndrome can be explained by ovarian dysfunction, as it has already been demonstrated that increased permeability of the hematoencephalic barrier is present during menstrual periods and during pregnancy. This ovarian origin would certainly supply a partial explanation for the preponderant incidence of this syndrome in the female sex. Henschen also connects the syndrome with the endocrine disturbances of the menopause.

In our case hyperovarianism seems to be out of the picture. The patient was well advanced in age, and her troubles began only seven or eight months before her death. She had never been married nor had borne children, and her menstrual cycle had come to an end more than twenty years previous to the onset of her mental troubles.

There remains the hypothesis that the hypertension may have been the cause of her hyperostosis. Her mental symptoms developed rather late in the disease, which leads to the assumption that they were directly connected and subsequent to the onset of the hyperostosis. The diffuse atrophy of the frontal lobes following continued pressure may well account for the mental symptoms. Although mental disturbance of a similar nature may develop independently of hyperostosis, still the large majority of cases of hyperostoses show a uniform mental picture which indicates that there must be some relation of cause to effect between hyperostosis and mental changes.

Recently McIntyre has shown that tumors may be the cause of mental symptoms and that many cases of frontal lobe tumors have been diagnosed as Alzheimer's disease, Pick's disease, arteriosclerotic dementia, encephalitis, and Parkinson's disease.

The hyperostosis is, to a certain extent, similar to benign hyperplasia of the bones and exostoses or other benign bone growths, variously classified between true

hyperplasia and tumor. Sabrazes and Jeanneney state that a distinction between true osteomata and bone hyperplasias, secondary to trauma or inflammations, cannot be established by pathological examinations alone. We consider that hyperostosis frontalis should be linked with hyperplastic processes and tumor formations of the bone. This same process in any other part of the body would undoubtedly receive the name of benign osteoma or exostosis.

The frontal hyperostosis is, in our opinion, certainly related to various other processes of a similar nature which are found in other parts of the skeleton, such as Albers-Schönberg's disease, melorheostosis of Leri, rachimorheostosis, and Marie's disease. Putti considers these hyperostoses as due to deficient blood flow and other vasomotor disturbances. Leriche has held that increased blood supply leads to absorption of bone tissue and a decreased blood supply to osteosclerosis and calcification. Hypertension in frontal hyperostosis would certainly be a factor in decreased blood flow.

In this syndrome the symptoms are so varied and multiple that one can hardly ascribe them to just one gland or to the lack of vitamins. Some authors have even advanced the thyroid as the gland which is responsible. However, the parathyroid and the hypophysis may play an important rôle in the development of the syndrome. In disease of the hypophysis and the infundibular region, or of the diencephalic centers, bone changes have been seen so often as to warrant such an hypothesis.

The syndrome is probably due to neuroendocrine

changes, involving the hypophysis, the infundibulum, the parathyroid and the thyroid, but for full development a ground already undermined by vasomotor disturbances, such as hypertension and arteriosclerosis, is necessary. For example, a chronic nephritis in case of parathyroid osteosis would increase the phosphopenia by renal retention of phosphates and thus favor the deposition of calcium. In this syndrome, by analogy, the bone changes would be favored by decreased blood supply in the presence of neuroendocrine lability, and would lead in their turn to further characteristic changes.

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THE RATIONALE OF THERAPY IN CONVULSIONS

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The occasional or single generalized convulsion is usually a symptom of an underlying disorder of intracranial circulation, a physiological disturbance rather than a pathological entity. However, repeated, periodic, generalized convulsions, long known as epilepsy, in all probability are the result of fixed uniform pathology produced by infection, trauma or the effects of repeated severe convulsions, all of which tend to disturb intracranial cerebrospinal fluid and blood vascular circulation.

Until recent years convulsions were considered by the average layman as supernatural and unexplainable phenomena in which the sense of hopelessness and defeat overshadowed all other considerations. It is only recently that science has discarded the hypothesis that convulsions are inherited. It is now known that the tendency to convulse, like fainting, is present in everyone, when underlying factors disturbing intracranial physiology are present.

The limited knowledge of the medical profession concerning circulatory disorders of the brain continues to keep convulsions in that large group of brain disorders in which etiology and mechanism are unknown. The application of available knowledge and understanding of the medical nature of convulsions, however, has accomplished much in the last few years toward changing the attitude and understanding, not only of

the medical profession, but of the laity, relatives and friends, as well as the patient himself, toward the attacks. The treatment of convulsions is now on a relatively scientific basis, and effective and satisfactory results are usually obtained when all phases of the therapy are applied and utilized by both physician and patient.

Etiology of Convulsions

There are many diseases and disorders throughout all periods of life, which tend to produce intracranial circulatory derangements resulting in convulsions. Hemorrhage within or about the brain, hydrocephalus and other forms of intracranial pressure in the newborn; high fevers as scarlet fever, especially in children; intracranial circulatory impairment as occasionally results in whooping cough; local infectious processes as meningitis and encephalitis of childhood; brain traumas and the lesser circulatory disorders which develop during adolescence; eclampsia, uremia, diabetes, nephritis, heart disease, brain tumors, alcoholism, food poisoning and associated conditions of middle life; cerebral arteriosclerosis and brain hemorrhage of old age—these and many other like medical conditions act as underlying causes which tend to disorder intracranial circulation and produce convulsions.

The immediate cause of the convulsion will usually

be found in disturbed intracranial circulation which may have a definite medical basis, as caused by one of the aforementioned conditions; or, when the physician is unable to find a definite underlying disease or disorder commonly producing attacks, the convulsion may be caused by a transient disturbance of intracranial or general body physiology producing disturbance indirectly of the intricate intracranial circulation. Strong emotional disturbances, as anger or sudden, severe frights, especially in children and emotional types of individuals, may quickly change the volume, rate and speed of inflowing blood into the brain greatly to disturb the normal intracranial vascular mechanism and produce attacks.

The most common pathological cause of chronic repeated convulsions, where no definite etiological factor can be found, is probably hemorrhage into the cerebrospinal fluid which may have resulted at time of birth or in later life, often years before the onset of convulsions. Free blood in large amounts, in the cerebrospinal fluid, tends to block the cerebrospinal fluid outlet at the sites of the paccionian bodies and thus produce pathological changes which grossly impair the necessarily flexible counterbalance of the intracranial cerebrospinal fluid and blood. Later in life when fright, fever or some similar emergency arises, calling for the rapid passage of blood through the brain, this impaired function makes itself known by the development of a convulsion. The apparent purpose of the intracranial ventricular system is to act as a spacetaker for cerebrospinal fluid when the intracranial circulation is quiescent and normal, and to allow the cerebrospinal fluid quickly to leave the intracranial cavity when the need arises for the capillary bed of the brain to expand when more blood is sent to the brain in response to physiological stimulation in emergencies. More oxygen-carrying blood can enter the brain only when one of the other two intracranial contents is displaced—brain or cerebrospinal fluid.

The mechanism of the convulsion is the problem which confronts science today. Many factors suggest that the most likely cause of the convulsion is sudden or gradually developing pressure within the capillary bed of the brain by blood which is forced into the brain faster than it can pass through. Intracranial pressure itself, or a slow development of focal pressure, as by brain tumor or hydrocephalus, will not produce this effect. The convulsion is apparently the result of sudden and rapidly produced generalized pressure resulting in a quick increase in volume of blood into the capillary bed of the brain which tends suddenly to expand the brain outward in all directions. Slow, gradually developing pressure within the capillary bed of the brain will also tend to force the brain stem down into the foramen magnum to develop this same mechanism. Here one must take into consideration the fact that the brain is held in a nonexpanding container with blood and cerebrospinal fluid, all relatively noncompressible. When this physiological type of intracranial pressure develops, forcing brain substance outward in all directions, there will be a secondary compression action on the surface vessels tending to block the venous outflow which is greatest on the surface of the brain, whereas the arteries tend to penetrate brain tissue proper and are not subjected to this surface pressure to the same extent, and at the same time tend to create

pressure from within to expand the entire brain outward.

This factor is of special importance in repeated convulsions and in status epilepticus where a low grade steady type of pressure tends to block the venous outflow of blood more than the arterial inflow, and thus sets up a vicious cycle in impairing the intracranial vascular circulation. Continued increase of volume, force and rate of the general blood stream, usually the result of physiological stimulation as by fright, fear, anger, or the regular circulation itself, tends to act as a hydraulic ram steadily to force fluid into the capillary bed of the brain and thus expand it outward in all directions. As the brain expands it will tend to be forced out at the largest opening in the skull. The largest opening being the foramen magnum, it would seem logical that pressure stimulus would be greatest on the brain stem at this point by the rim of the foramen magnum.

There are numerous well-known physiological facts to suggest that brain stem pressure by the constricting foramen magnum is the immediate cause of the nervous tissue stimulation producing the grand mal convulsion. The medulla oblongata is the most sensitive part of the brain. The cortex is relatively insensitive to pressure, cutting and other forms of stimulation. Constricting pressure over the medulla oblongata, studied experimentally in animals, will produce movements similar to a convulsion—respiratory and cardiac arrest with generalized tonic spasm of the entire somatic musculature which is often followed by clonic convulsive movements. The nervous mechanism activating the musculature in the convulsion is located directly or indirectly in the brain stem. All signs and symptoms, from the preconvulsive cry with cardiac and respiratory arrest to the generalized pyramidal tract spasticity and sensory anesthesia, suggest pressure stimulation in the area of the brain stem. The somnolence and confusion following the convulsion are apparently a secondary effect, the result of the cortical anoxemia and pressure caused by the generalized intracranial pressure at the time of the convulsion.

In consideration of the sudden onset of the convulsion and instantaneous stimulation to action of all of the body musculature, it would seem logical that the stimulation is the result of pressure. Chemical stimulation or oxygen effect in overaction or absence could not act so suddenly and stop so completely. The entire reaction of muscle tissue, during the convulsion, suggests pressure stimulation suddenly applied and as suddenly released. The other types of common nerve stimulation are electricity and heat which have no bearing in the average convulsion. Voluntary or involuntary physiological stimulation is not logical. This leaves pressure stimulation as the most likely cause and the one point where pressure stimulation might produce this effect is by constricting pressure about the sensitive medulla oblongata as by being forced downward into the foramen magnum by the expanding capillary bed of the brain above.

In this regard it must be remembered that for any muscle contraction there must be a proper and adequate stimulus. Anoxemia with brain expansion, massive hemorrhage, loss of water-bed action about the base of the brain due to sudden loss of cerebrospinal fluid, insulin shock, the ligating of large arteries or

veins of the brain and other associated factors are all closely related to the mechanism producing the convulsion and require further research to establish their relationship. The mechanism of the convulsion itself, however, is in all probability a single mechanism varying widely in degree but, like syncope, with a single action. The convulsion is apparently the physiopathological opposite of syncope. In syncope the blood vessels of the body suddenly lost nervous tone with relaxation of vessel musculature thus dilating and producing cerebral anemia and anoxemia which are usually corrected by gravity in the resulting change of position, the lowering of the head. The convulsion, on the other hand, is in all probability nature's release mechanism or safety valve action suddenly to lower intracranial pressure when it reaches a dangerous point, which in itself would seriously impair the inflow of blood into the brain; and if prolonged, the resulting anoxemia would produce permanent damage to delicate brain cells. This conclusion is suggested by the fact that, following a single severe convulsion in both man and animals, the blood pressure is above normal immediately before the convulsion and below normal after the convulsion.

Experimental studies which tend to verify this hypothesis are the following:

(a) Dehydration tends to decrease convulsions therapeutically and experimentally, while hydration tends to lower the threshold to convulsions.

(b) The bromides, phenobarbital and other sedative medication, as well as hypnotics like sodium amytal which tend to lower blood pressure, usually check or prevent convulsions therapeutically and experimentally.

(c) Amyl nitrite inhalations, which rapidly lower blood pressure, will prevent experimental convulsions in animals as well as convulsions in man where an aura precedes the attack to warn the patient in time to use amyl nitrite.

(d) Both blood and cerebrospinal fluid pressures are greatly increased immediately before and during convulsions in animals.

(e) Status in convulsions is often and best checked by free drainage of cerebrospinal fluid.

(f) Periodic removal of blood, in robust individuals

subject to convulsions, tends to check the attacks. Removal of five to ten percent of blood in experimental animals tends to lessen or prevent chemically induced convulsions.

(g) In both clinical and experimental convulsions there is respiratory, as well as cardiac arrest, suggesting strong inhibitory pressure on the vagus nerves and nuclei, located in the medulla oblongata.

(h) Postmortem studies often show herniation of the medulla oblongata and degenerative cellular changes are found in this area microscopically in both animals and humans who have suffered repeated attacks of major convulsions.

(i) Experimental laminectomy over the medulla frequently shows herniation of the brain stem simultaneously with the major convulsion suggesting medullary oblongata pressure by the rim of the foramen magnum.

(j) Trephine sites show herniation of cortex during the major convulsion, suggesting intracerebral pressure.

(k) Chemical convulsants are alike in that they are strong circulatory stimulants. Strychnine, camphor monobromate and metrazol are examples.

Summary

The therapeutic measures used today by the medical profession in the treatment of convulsions are scientific and logical and, with the cooperation of the patient, much can be done in the average case. It should be understood by the patient and relatives that the convulsion is not inherited but is, in itself, a physiological reaction, probably a protective mechanism on the part of nature to prevent damaging longstanding intracranial pressure. The problem is to correct the underlying cause and to make everything as favorable as possible for the prevention of further convulsions through the partial and indirect control of intracranial circulation through logical therapy and good hygiene. Where every effort is made to lessen the severity and frequency of the attacks, natural corrective processes of the organism, acting over a long period of time, will do much to correct the impaired physiology and remove pathology where present.

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SIMPLIFIED TREATMENT OF ACUTE TONSILLITIS*

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In 1934 Monteiro (1) first pointed out that acute tonsillitis could be successfully treated by intramuscular injections of bismuth. Patients with tonsillitis recovered quicker by this than by the use of the other well-known methods. Astonishingly enough, the paper received but little attention. Not until de Mello (2) confirmed these observations in children was more interest in this kind of treatment shown in Europe. Some investigators used already known pure bismuth preparations, while others administered combinations of bismuth with iodine or quinine [Imhof (3); Buhre (4); Boese (5); Stiehr (6); Maraschini (7), and others].

Since 1936 I, personally, have used tricamphorcarbonic acid bismuth for intramuscular injection. We all could only confirm the observations of Monteiro with amazingly fast and good results. In January 1937, in a paper (8) describing the treatment of a series of fifty cases with the above mentioned bismuth preparation, I wrote as follows: "After one injection of bismuth, the temperature usually goes down to normal within twenty-four hours; the fur on the tonsil sloughs off and existing edemas disappear; pains on swallowing subside within six to eight hours, and the general condition becomes normal after twenty-four hours."

These experiences have been confirmed by other authors again and again, whereas the percentage of heal-

*Read before the R. Virchow Medical Society of New York, Nov. 2, 1942.

ings varied to a certain extent. Last year Monteiro (9) again published a paper on the same subject but without providing any new details regarding the problem. But in spite of all these publications this treatment has not become generally accepted. Probably the reason was that many physicians were afraid of using the intramuscular injections of bismuth which are not only painful but have the disadvantage that the bismuth depot is resorbed with individually changing speed and remains in the muscles for a long time. We could study the very slow resorption of bismuth in the gluteal muscles with x rays. Therefore, we tried at that time to administer bismuth by means of suppositories. However, the successes were not as quick and marked, because the bismuth used was not resorbed as well and as quickly from the rectum; however, here too the effect of bismuth was apparent.

In 1939, in a second paper (10), I could not only publish a new series of successes with the bismuth treatment, but could also demonstrate that other diseases such as the beginning of quinsy, inflammatory edema of the nasopharynx and certain forms of subacute tracheitis could be markedly improved and cured by bismuth treatment. But we stressed once more the fact that the full-fledged quinsy, tonsillar sepsis, diphtheria, or rhinitis could not be influenced or cured by bismuth.

After 1939 the bismuth treatment was relegated to the background again. This is understandable, because at that time the sulfa drugs were introduced, superseding all other less known drugs. We too followed this trend. However, on critical appraisal one had to concede that the sulfa drugs, being excellent for the treatment of certain conditions which we treated before with bismuth, have certain disagreeable disadvantages in comparison with the bismuth treatment. Usually it takes at least twenty-four hours for the effective level of the sulfa drugs to be reached in the blood; many patients cannot tolerate the sulfa drugs, and an exanthema, nausea and vomiting occur; in other patients, damages to the blood or kidneys result, and some become sensitized to the sulfa drugs, so that one may be unable to administer them in case of a later emergency. Besides, the administration of the sulfa drugs requires a continuous control of blood and urine and observation of the patient, since frequently severe damage to the blood may develop in a short time.

These important objections, encountered by all of us, induced me to take up again the bismuth therapy in acute tonsillitis. To counter the difficulty of the painfulness of the intramuscular injections and in some cases of the slow resorption, it was necessary to look around for a bismuth preparation equally effective in oral and rectal administration. Reviewing the literature we found that there exists the sobisminol mass¹ in capsules, a thoroughly examined and good working preparation in cases of syphilis. Besides the excellent investigations of Hanzlik and coworkers (11), I was assured by experienced dermatologists concerning the effectiveness and harmlessness of the drug.

Therefore, I could begin the treatment of acute tonsillitis and related conditions with sobisminol by mouth and rectally. To use the capsules as suppositories it is advisable to open them at both ends with a pin. After

some experimentation we found out that, on the first day of an acute tonsillitis, adults should take four to five capsules by mouth or rectally, distributed over the whole day. We recommend that the capsules be taken with half a glass of water immediately after meals. Children should get three capsules on the first day of the illness. On the second day adults should get three and children two capsules. We did not find any important difference in the resorption of sobisminol by mouth or rectally, both forms of application being equally effective.

One capsule contains the reaction product of sodium bismuthate 0.2 Gm., triisopropanolamine 1.4 Gm., propylene glycol 0.1 Gm., and ethyl alcohol 1.1 Gm. This represents approximately 150 mg. of elemental bismuth, which is present as part of a stable anionic complex.

Sobisminol mass has been shown to be well absorbed, well tolerated, and nontoxic in therapeutic doses, and to be relatively free from untoward side-effects. This experience was made in the therapy of syphilis where doses double ours are given throughout a period of weeks and months. It is, therefore, not astonishing that with our relatively small doses in two days we have hardly seen any side-effects. Sobisminol mass is absorbed from the gastrointestinal tract, goes into the various organs and is excreted through the urine and feces. According to the papers of Hanzlik, about sixty percent of the administered sobisminol remains unaccounted for and is thought to be stored in the body, partly in the walls of the intestine and partly in other viscera: kidneys, liver, blood, muscle, and brain. In a second paper, we shall discuss the histological findings of our investigations.

In treating syphilis with sobisminol it was found that some contraindications in the application of bismuth have to be observed: Idiosyncratic or allergic reactions to bismuth, though rare, are not unknown and may be manifested by skin reactions of various types. Hemorrhagic diathesis of any type is also thought to present a contraindication; the same holds true of non-syphilitic hepatic disease and colitis ulcerosa. Bismuth line, stomatitis, dermatitis, diarrhea, nausea and vomiting, ptialism, and renal damage are not observed with the small doses we used.

Acute Tonsillitis

All in all we treated forty-five cases of acute tonsillitis. Just as in the cases treated by intramuscular injections, here too we noted that pain on swallowing subsided within six to eight hours, the temperature dropped to normal within twenty-four hours (at the latest within thirty-six hours), the fur on the tonsils sloughed off, the exudate was resorbed, the reddening of the pillars subsided, the swelling and edema of the tonsils and soft palate disappeared, also the general malaise, and after twenty-four hours, (in rare cases after forty-eight hours) the general condition was good again. The tenderness and swelling of the regional glands disappear, first the tenderness, and after two to three days, the swelling as well.

On the average, one can say that, if, after forty-eight hours of treatment, an acute tonsillitis has not disappeared, one must consider the possible existence of some other infectious disease, such as diphtheria, scarlet fever, intratonsillar or peritonsillar abscess.

¹All the Sobisminol Mass Capsules used in this study were furnished by the Eli Lilly Company, Indianapolis, Indiana.

Knowing that in most cases of acute tonsillitis streptococci are found in the smears from the tonsils, we did not take any smears or cultures in our cases. We knew, furthermore, that in a small percentage of cases staphylococci or pneumococci are the responsible germs.

If one considers that, normally, acute tonsillitis lasts four to seven days, we have to acknowledge that the bismuth treatment really means essential progress. If this treatment is not successful, because of one of the above mentioned complications, the bismuth treatment gives no contraindication for the immediate administration of any other therapy.

In the future, it will be interesting to observe whether the bismuth treatment of tonsillitis can prevent, or decrease the occurrence of secondary affections, such as nephritis, joint diseases, heart conditions, and it goes without saying that in a great number of cases one can draw a conclusion in this direction only.

Local complications, such as quinsy, can hardly be prevented by the bismuth therapy. As pointed out previously, the intramuscular bismuth therapy is not effective in quinsy; our experience with sobisminol is not better, although a few cases of peritonsillar infiltration, giving the impression of a beginning peritonsillar abscess, subsided after bismuth administration by mouth. We try to explain the failure in these cases by supposing that bismuth acts only on diseases of the lymphatic tissue, while in peritonsillar abscess the supuration is in the tonsillar fossa and the infiltration takes place in the pterygoid muscles. It is worthwhile to observe that up to now in the literature on bismuth, no attention has been paid to peritonsillar abscess.

In cases of so-called septic sore throat (streptococcic sore throat) we have not yet had any experience with bismuth treatment. This preparation should be tested in such an epidemic disease.

Pharyngitis

Acute and chronic follicular pharyngitis does not react at all to bismuth treatment; the same applies to the chronic compensatory pharyngitis after tonsillectomy. However, if the follicles on the pharyngeal surface are acutely inflamed, that is, if they are beefy-red, coalesce, and small yellowish plugs can be seen in the center—a picture very similar to that of acute tonsillitis—the patient runs a slight temperature and has pains on swallowing, then we treat successfully with bismuth by mouth or rectum. It seems to us that the decisive criterion for the indication of a bismuth therapy is the presence of purulent plugs or exudate. In five cases we saw fast and good results.

Fusospirochetosis

This ulceromembranous stomatitis is a relatively common disease. "Generally beginning on the tonsils, a pseudomembrane extends to the surrounding parts. The alveolar process, tooth sockets, bronchial mucous membrane, and even other parts of the body may be attacked" (12). Unfortunately, it is often forgotten that this disease must not be restricted to the tonsils and this is the reason why the correct diagnosis is seldom made. Since we formerly treated Plaut-Vincent's angina successfully by intramuscular bismuth injections, it was obvious that those cases should be treated with sobisminol. Already in 1931 V. Harrel (13) pointed

out that bismuth intramuscularly injected is the best therapy for Plaut-Vincent's angina, and this fact has not been changed since the introduction of the sulfa drugs. All authors agree that the sulfa drugs are of little help in cases of Plaut-Vincent's angina. Recently, James F. Lewis (14) discussed the whole problem in detail and he presented very interesting contributions. Generally speaking, he is of the same opinion as Harrel and ourselves. His method of taking smears from the tonsils by the suction technique deserves particular attention; for details we refer to Lewis' papers.

Until now we have assumed that spirochetes and fusiform bacilli, along with streptococci, staphylococci and other germs, form a symbiosis and "it takes apparently only some factor lowering tissue resistance to set the stage for invasion. This phenomenon of bacteria lying latent and striking at a 'locus minoris resistentiae' is one of the cardinal concepts of medical bacteriology" (15). In other words, we hold the spirochetes and fusiform bacilli responsible, in one way or another, for the development of Plaut-Vincent's angina. The therapeutic success of bismuth treatment speaks at least very much in favor of this opinion.

Only a few cases of Plaut-Vincent's angina could be treated with sobisminol mass, but it was evident that all six cases reacted immediately to this treatment. i.e., the dirty, bluish-gray membranes begin to slough off within the first twenty-four hours, the foul breath disappears, the pains on swallowing subside, the swelling of the submaxillary glands decreases, the fever drops. On the second day the ulcer begins to clear, the temperature is normal, the reddening of the tonsillar tissue diminishes, and on the third day the disease has healed so far that it can no longer be recognized.

In cases of Plaut-Vincent's angina, we administer two capsules of sobisminol three times during the first day, and two capsules twice on the second day.

Finally, I should like to mention another possibility of administering bismuth by mouth or rectum. In my first paper on this subject in 1937, I published among other diseases, five cases of a subacute tracheitis in elderly people. These patients had been treated before by experienced medical men with all modern drugs, but without any result. They were referred to me for bronchoscopic examination. The findings in the nose, throat, larynx and bronchi were negative, so I decided to give intramuscular injections of bismuth, just for an experiment. To my surprise, all patients had been cured within four to five days. At that time, I could not explain these favorable results and was even unable to define the original disease. However, in the last few years I saw more cases similar to these and achieved the same good results. Recently, I was in a position to treat a few cases of this kind with sobisminol. Only by studying the literature of the last years have I been convinced that in these cases the bronchial mucous membranes have been attacked by spirochetes and fusiform bacilli. This opinion was confirmed by Lewis in his last paper. Apparently fusospirochetosis of the respiratory tract has not yet received adequate attention, and Lewis agrees with other authors who believe that lung abscesses, pulmonary gangrene, and bronchiectasis are frequently caused by a Vincent infection. However, it seems to me that this assumption goes too far, it is an overestimation of the Vincent infection; I rather believe that only a small percentage

of these diseases are due to a fusospirochetosis. We would otherwise see many more successes with bismuth treatment in cases of lung gangrene, abscesses or bronchiectasis. For the time being, the main difficulty is to make the diagnosis "fusospirochetosis". We shall have to study the diseases in question in detail from the new point of view of a spirochetosis; it may be that examination of smears from the bronchi by bronchoscopy will enlighten us. Until this time, I had to make a diagnosis from the long history of the cough and from the fact that all known methods of treatment failed to mitigate or cure the long-standing cough.

It is instructive to see such a case quickly cured by sobisminol. I should like to give one example: A white woman, forty years of age, complained for nine weeks of cough; during the night she coughed more than during the daytime. A brother-in-law suffered some months ago from whooping cough. Ephedrine, codeine, terpene, inhalation, potassium iodide, pantopon did not give relief. Nose, throat and larynx, were negative. Nothing could be heard over the lungs. Fluoroscopy and x rays of the chest were likewise negative. The patient was given four capsules of sobisminol daily for three days. The cough gradually decreased and on the fifth day she was pronounced cured.

Three more cases with analogous complaints and negative findings were cured in the same way. There is no other possible explanation than to assume that a fusospirochetosis of the bronchi was the cause of the cough and this fusospirochetosis was cured by the bismuth administration.

Comment

After our own investigations and the experiences of other authors, there can be no doubt that in cases of acute tonsillitis, pharyngitis with exudate, Plaut-Vincent's angina and fusospirochetosis of the trachea, bismuth treatment is the method of choice. In other diseases of the upper respiratory tract, such as acute rhinitis, sinus conditions, and peritonsillar abscess, the bismuth treatment does not achieve any success. It is of no consequence whether the bismuth is administered intramuscularly, rectally or orally. We believe that the administration by mouth means real progress, and we think that sobisminol mass in capsules is the most suitable preparation for the time being.

The advantages of sobisminol capsules are not only its relative nontoxicity, its compatibility, quick resorption in the gastrointestinal tract, the lack of side-effects, the needlessness of blood control, but also the fact that the same capsules can be used as suppositories if necessary for special reasons. Bismuth has many advantages compared with the sulfa drugs; for instance, its quicker action, and lack of sensitization; it seldom produces an exanthema, is not dangerous in the therapeutically needed dosage, and does not damage the kidneys or blood. In case of epidemics when numerous patients are taken ill at the same time, for example, in camps, army, navy, etc., the bismuth treatment is easy to handle.

Now, how shall we explain the action of bismuth in these diseases? Until now, no author has given a plausible explanation. It is not easy, because we know that bismuth does not influence the growing of bacteria in the test tube or in a culture; only in the presence of organic tissue does bismuth exert its influence on growing bacteria. However, James F. Lewis recently pub-

lished an explanation which is by far the most convincing so far. First, he presupposes that a considerable proportion of the acute and chronic tonsillitis cases are due to fusospirochetal infection. Hemolytic streptococci are thought to be the main etiological agents in acute tonsillitis, but it is quite possible that the spirochetes and fusiform bacilli play a more active rôle than is ordinarily thought. He believes that Vincent's organisms become invasive when a *locus minoris resistentiae* is presented by such factors as trauma, mercury or bismuth intoxication, malnutrition, abnormal dental conditions or primary invasion by some other organism. He proves this opinion by the fact that biopsy of typical ulcerative lesions shows these organisms penetrating deeply into apparently normal tissue, with the spirochetes leading the invasion, the bacilli next, and various cocci in the outer zone. Further investigations are necessary to prove that the spirochetes and fusiform bacilli have really this etiological importance. On the other hand, we could believe that normally there is a harmless symbiosis between streptococci and spirochetes which in acute tonsillitis is disturbed in favor of the streptococci. As we know from histological examinations of tonsils in tonsillar sepsis, streptococci penetrate into the depth of the tonsillar tissue. Now, if we administer bismuth in acute tonsillitis there is a possibility that the bismuth not only acts on the spirochetes but also on the streptococci in the changed, inflamed tissue, since we know that bismuth acts only on the growing of bacteria in the presence of organic tissue, thus restoring the symbiotic equilibrium of bacilli in and on the tonsil.

Up until now we did not know if and how the bismuth reached the tonsil at all. We may say, following our recent experiments, that bismuth very quickly reaches the tonsils via the bloodstream and can be found there histologically. At present, we cannot answer the question of whether the bismuth goes to the tonsils only as a part of the reticuloendothelial system, or merely is excreted there just as well as through the kidneys or intestinal wall. One fact may be stated, however: within a few hours, the bismuth goes from the gastrointestinal tract to the tonsils and produces there a certain effect on bacilli present in the altered and inflamed tonsillar tissue.

One interesting clinical observation, pointed out in an earlier paper, must be mentioned once more. Patients systematically treated with bismuth because of syphilis never fall ill of an acute tonsillitis during the treatment and for quite some time afterward. The probable explanation is the storage of bismuth in the reticuloendothelial system and in the tonsils.

Summary

1. The old conviction that an acute tonsillitis can be cured quicker by bismuth than by the other known remedies, has been again confirmed.

2. Instead of the intramuscular bismuth administration, sobisminol mass in capsules, administered by mouth or rectum, is for the first time introduced into the therapy of acute tonsillitis and related conditions. In the treatment of acute tonsillitis sobisminol shows no side-effects.

3. The pharyngitis granulosa, with exudate, is also very well influenced by bismuth administered orally and rectally; the same holds true of the fusospiroche-

tosis of the upper respiratory tract, such as Plaut-Vincent's angina and a specific subacute tracheobronchitis.

4. Bismuth given by mouth or rectum in the form of sobisminol mass capsules is the treatment of choice in diseases enumerated above.

5. In adults we give four to six capsules of sobis-

minol on the first day of the disease and three to four capsules is the average therapeutic dose on the second day. In children we give three to four capsules on the first day and on the second day three capsules. It makes no difference whether these capsules are given by mouth or rectum. *(Bibliography on page 45)*

AN UNUSUAL CASE OF ABDOMINAL APOPLEXY

SIDNEY HIRSCH

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Because of the infrequency of recorded cases of abdominal apoplexy associated with hypertension, I think the case reported here is worthy of being recorded. Spontaneous rupture of an intraabdominal artery has been reported sufficiently but usually in association with malignant growth (1, 2) or trauma. Dr. George Crile (3) stated that "in reviewing the literature he found that ten previous cases of abdominal apoplexy associated with arteriosclerosis and hypertension have been reported."

Report of Case

The patient, L. K., a man aged forty-six, white, married, was first seen in April 1935, for routine examination. His previous history was negative except for chickenpox and measles in childhood and a history of always having been obese. His family history, however, was quite interesting.

In March 1924, Dr. Simon S. Leopold reported a case of familial arterial disease (4) from the University Hospital in Philadelphia. This article surveyed our present patient's family and noted that his brother, a man of forty had just died of hypertension and chronic glomerulonephritis. In addition, a sister, H. K., died at the age of forty-three. One year prior to her death, at the age of forty-two, she was suddenly stricken with a right-sided hemiplegia, with resultant paralysis of the right arm and right leg. Another sister, Mrs. C. C., aged forty-five had had hypertension for the past two years. Examination on April 10, 1924, revealed a systolic pressure of 210. Still another sister, Mrs. M. C., aged thirty-two, following acute follicular tonsillitis at the age of fourteen, developed acute nephritis. Examination in April 1924, revealed a systolic blood pressure of 180. A brother, L. K., aged thirty, is our present patient. His systolic blood pressure was 146. The mother died at the age of sixty-three of apoplexy.

Physical examination of the patient showed: Weight, 240 pounds; blood pressure, 230/110; urine, negative; electrocardiogram, left ventricular preponderance; basal metabolism, minus five percent. He was advised to reduce and by October 1935, his weight was 218¼ pounds and his blood pressure 170/90.

In February 1936, he began to complain of headaches and abdominal pains. His weight then was 230 pounds; blood pressure 220/140; urine showed a faint trace of albumin.

In February, 1938, he complained of a bloody urethral discharge. After examination and cystoscopy, this bleeding was ascribed to a hemorrhagic trigonitis. There was a good indigo-carmin stain from both kidneys and a bilateral retrograde pyelogram was normal.

The blood urea nitrogen at this time was 25 mgs./100 cc. In January 1939, precordial distress developed which radiated to both shoulders. His blood pressure was 240/140. An electrocardiogram showed left ventricular preponderance.

In May 1939, blurring of vision developed, and the fundus examination showed numerous hemorrhagic exudates in both eyes. A diagnosis of hypertensive retinitis was made. Blood pressure, 270/170; blood urea, 33 mgs./100 cc.; weight 203 pounds.

In January 1940, the patient suffered from severe abdominal cramps for one week. There was loss of appetite, but no nausea or vomiting; bowels moved only after catharsis; blood pressure, 270/140.

On January 4, 1940, he was admitted to St. Joseph's Hospital, Far Rockaway. Temperature, 101.4°; pulse, 100; respirations, 26. The lungs showed numerous coarse rhonchi throughout. The abdomen was moderately distended and slightly tender throughout. Rectal examination was negative.

Laboratory data: Circulation time, 2 cc. ether administered intravenously 13.8 seconds.

Cold pressor test: Temperature of water 39 degrees. Blood pressure before test, 245/100; one minute after, 300/190; three minutes later, 300 plus 190; five minutes later, 300 plus 190.

Nitroglycerine test (1/100 grain under tongue): Blood pressure before test, 265/170; fifteen minutes later, 268/160; ten minutes later, 268/160; fifteen minutes later, 276/180; twenty minutes later, 278/180.

Phenolsulphonephthalein test: First specimen, no dye; second specimen, very faint trace.

Urine: Albumin, 3 plus; specific gravity, 1.010; microscopic examination showed eighteen red blood cells to high power field.

Electrocardiogram: 1, T deflection opposite main QRS in all leads; 2, widened QRS complexes. Diagnosis: Bundle branch block.

Generalized lower abdominal tenderness was slight.

The fundi showed numerous hemorrhagic exudates. Blood sugar, 107; urea nitrogen, 53.5; creatinine, 2.3; chlorides, 400; nonprotein nitrogen, 78.5 mg.; carbon dioxide, fifty-eight percent volume; total protein, 6.64/100 cc. serum; globulin, 2.5 gm./100 cc. serum; albumin, 4.129 m./100 cc. serum; albuminglobulin ratio, 1.6/1; calcium, 7.1 mg.; hemoglobin, 70.9 percent; red blood count, 4,210,000; white blood count, 21,800; polymorphonuclears, 95 percent; lymphocytes, 4 percent; monocytes, one percent; Wassermann test, negative.

X ray examinations: Chest showed enlargement of cardiac shadow with shape suggestive of hypertensive

disease. Both lungs were somewhat mottled, chiefly at bases, apparently due to congestion.

Examination of the gastrointestinal tract showed stomach normal in size, shape and position. The duodenal bulb filled normally; at five hours several isolated loops of small intestine were still filled and slightly dilated. The bulk of the meal had reached the proximal colon. Twenty-four hours later, the meal was still noted throughout the colon. Dilated loops of small intestine were still noted. Barium enema showed no evidence of any organic pathology. The entire colon filled completely from rectum to cecum without organic spasm, delay, obstruction or filling defect. Several loops of small intestine were moderately dilated.

On January 15, 1940, the patient suddenly went into collapse, vomiting blood. Diagnosis: Intragastric or intraduodenal hemorrhage.

Postmortem Findings

The patient, L. K., died on January 15, 1940, at 8:30 a.m. Autopsy, at 3:00 p.m., the same day.

General examinations: The body was that of a white male, forty-six years of age, about five feet, eight inches in height, weighing approximately two hundred pounds; well developed and well nourished. The pupils were equal and mid dilated. The mouth and teeth were normal. The abdomen and external genitalia showed no abnormal change. No edema or cranial swelling was noted.

Weight of organs: Left lung, 420 grams; right lung, 490 grams; heart, 620 grams; liver, 1880 grams; spleen, 220 grams; right kidney, 140 grams; left kidney, 140 grams.

Body wall and cavities: Subcutaneous fatty tissue measured about one inch over the mid-line at the level of the umbilicus. There was about 200 cc. of fluid in the peritoneal cavity; no excess fluid in the pleural cavities. There was about 100 cc. of straw colored fluid in the pericardial sac. The organs of the thorax and viscera lay in their normal positions.

Thorax

Lungs: The lungs lay free in the pleural cavity. The surfaces were grayish red in color. Section showed minimal congestion and good aeration. No solid areas were noted. The tracheobronchial tree was normal except for the presence of a small amount of stomach contents. The pulmonary arterial tree showed no remarkable change.

Heart: The heart was markedly enlarged; the enlargement was due mainly to hypertrophy of the left ventricle which bulged into the right heart. The epicardium showed a moderate amount of fatty tissue. The myocardium was firm, reddish brown in color, and in the intraventricular septum there was a slight amount of "tiger streaking", indicative of an old infarct. The papillary muscles in the left ventricle were markedly hypertrophic and showed some fibrosis on the cut surface. The valves were all within normal limits. The coronary arteries showed some sclerosis and narrowing at their mouth. The remainder of the vessel was markedly tortuous, stiff, and in the main dilated. No evidence of an old occlusion could be found. The aorta was of normal size showing a moderate amount of atheromatous change. No evidence of calcification was noted.

Abdomen

Spleen: The spleen was slightly enlarged; the capsule was smooth. Section showed a pulpy parenchyma with loss of follicular markings. The adrenals were normal, showing slight medullary autolysis.

Kidneys: The kidneys were slightly smaller than normal; the capsules stripped with ease, revealing a moderately granular surface. Section showed normal cortical relationship. The vascular tree was prominent. Pelvis and ureters were normal. The bladder showed no gross abnormal change. The prostate showed no remarkable change. Testes were not unusual.

Liver: The surface of the liver was pale brown in color. Section showed a normal architecture with slight swelling of the liver lobules. The gallbladder was markedly distended and on section one large stone was found in Hartmann's pouch. However, it was not impacted in this area. The common duct was markedly dilated and could be followed down to the duodenum.

Pancreas: There was marked enlargement of the head of the pancreas and from this area there was an exudate of hemorrhagic and necrotic debris. On section it was found that the normal head of the pancreas was replaced by a hemorrhagic, necrotic abscess which had ruptured into the general peritoneal cavity. The pancreatic duct, through this area, could not be followed because of the marked necrosis. In the body and tail of the pancreas there were numerous smaller areas of liquefactive necrosis. There were scattered throughout the peritoneal fatty tissue small areas of fatty necrosis. The duodenum, where it surrounded the head of the pancreas, showed marked hemorrhage in the wall; this, probably being due to an erosion of a vessel due to the necrosis of the pancreas with extravasation of blood between the layers of the duodenum. This hemorrhage was quite extensive; it lay between the mucosa and the muscularis and pushed the mucosa inward so markedly as to cause a complete duodenal obstruction. The hemorrhage involved the distal half of the second portion of the duodenum and the entire third portion of the duodenum.

Anatomical Diagnoses

These diagnoses were: 1. Acute hemorrhagic and necrotic pancreatitis. 2. Hemorrhage into wall of duodenum. 3. Gastric hemorrhage, massive. 4. Malignant nephrosclerosis. 5. Chronic cholecystitis and lithiasis. 6. Concentric hypertrophy of the heart. 7. Myocardial fibrosis. 8. Coronary arteriosclerosis.

Summary

There has been presented an unusual case of hemorrhage into the head of the pancreas and into the intramural portion of the duodenum, complicating a chronic hypertension and resulting in sudden death.

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501 BROADWAY

Editorials

Postwar Medicine

It may seem a little premature to talk about the rôle that medical men will play after the war is won, but men in other fields have had much to say about what we should do after the fighting stops. Beveridge in Great Britain has an interesting plan for a new economic setup which has caused a lot of comment; Wallace in this country, and many others, have been telling us what we must do when the war is over, but we have heard little about the rôle that medicine must play after the end of hostilities. The medical men themselves are so busy either in the armed forces or caring for the civilian population that they have little time or thought for the future. In the past the talkative ones have worked out schemes and the medical men have complacently fallen into the rôle that has been assigned to them.

We believe that there is going to be a tremendous job in the field of medicine after the war. There are shortages of medical men throughout the world. There are too few physicians to take care of the injured in Russia, in China, and wherever hostilities have reached a high point; and the medical care that the inhabitants of the invaded countries receive is far from adequate in spite of the fact that living standards are far below those conducive to good health and well-being.

We believe that it will be many years before a healthy balance will be effected in Asia, in Europe and here. The Americas have suffered least so far, but the pinch is felt. Nevertheless, medical men must be prepared to render aid throughout the world not only in the fields of surgery for war casualties but in the fields of sanitation, nutrition, and in caring for the civilian population. We talk about rehabilitation by the use of foodstuffs. This we grant is of primary importance but we firmly believe that medical training should be vastly increased with a view to the future and to helping take care of our more immediate needs.

Health of the Nation

Mrs. Eleanor Roosevelt has recently returned from England and has been broadcasting the results of her observations. In her rather short stay in Great Britain she keenly observed many basic situations. She not only observed but integrated her observations, praising the constructive side of the picture as she found it, and helpfully criticising the short comings as she saw them. From newspaper reports we gathered that she was being kept at arms' length from the people

who did things, and was surrounded by a group of the *élite* who were the ones who ordered things to be done. Nevertheless, she was able to get down to basic fundamentals.

One of her comments concerned the men in the American Expeditionary Force. She felt that many of the soldiers received better medical care than they would have received had they remained in civilian life. At first glance this seems fine but on second thought it is rather an indictment. Why should it be that in this rich country of ours, where medical science has reached such a high standard, there are groups in civilian life which, for one reason or another, are not in a position to secure the best that medical science has developed?

Our own reaction to this situation does not fall into the category of what is known as rugged individualism. We are strongly of the belief that every person should receive the best of medical care both in the preventive field and in the field of treatment. We feel that it is the duty of the state and of the community to render these services if they are not otherwise procurable.

We could leave the statement at this point but it might be misleading. It seems logical that if the state assumes the responsibility of keeping the population in the highest degree of health that modern science can offer that, in turn, in times of peace we would have a more efficient community, less work days lost on account of ill health, less chronic and communicable ailments, and so, by protecting the individual, the group would in turn be protected. Furthermore, in times of war we would have a healthier reservoir of manpower than we do have under the present hit-and-miss system. We feel that to the four freedoms could well be added the freedom from ill health.

Doctor and Patient in the Soviet Union

Just before the war, Dr. J. Lipetz visited Russian health institutions, and an interesting survey of his impressions is presented in the *Indian Medical Journal*. The medical service in the Soviet Union is free to all. The Commissariat of Health is directly responsible for all the multitudinous units which constitute the health services of Soviet Russia. In the early nineteen twenties the doctors were the first professional class prepared to work in harmony with the new régime. The reason lay partly in the fact that their first Commissar of Health, Dr. Semashko, a Bolshevik and close friend of Lenin, quickly made it evident that in the making of medical appointments he never questioned a doctor's politics so long as he was prepared to give conscientious service to the Soviet medical services.

Dr. Lipetz visited the Polyclinic Aeroflot, a pleasant building at an aerodrome near Moscow. It served the personnel of the air fleet, the workers attached to

the aerodrome and their families. Apart from emergency work, the staff worked in two shifts of five hours each. The polyclinic was a general practitioner and specialist service combined, but each patient was definitely under the care of one physician to whom he returned after consultation with a specialist. The nurses worked on an average of six to seven hours a day. The kitchen chiefs had qualified in a school for medical cooking and had salaries comparable with the less highly paid members of the medical and surgical staff.

The average stay of patients in the Central Clinical Hospital of People's Commissariat of Railway Workers was eighteen days. Hernia and appendicitis operations averaged eight days, confinements seven to eight days. In the entire hospital there was no chloroform or ether; spinal and intravenous anesthesia was used.

The Hospital for Industrial Diseases, in Leningrad, was staffed by one hundred and three doctors. Admission was restricted to cases of definite industrial disease; ordinary industrial accident cases were sent elsewhere. Where such specific industrial accidents occur, a doctor, an engineer and a chemist go immediately to the factory. These three technicians examine the situation and no work can start in that section of the factory until their permission has been given. All people in industry are required by law to be examined medically at regular intervals, generally six months.

A visit to the House of Sanitary Culture gave an impression of the emphasis placed by the Commissariat of Health on preventive medicine and health education. Throughout the Soviet Union there are three hundred such Homes of Sanitary Culture with a Central Institute in Moscow.

The working conditions of medical scientists in Russia have been estimated as "well-nigh ideal." The work of Professor Filatov on corneal grafting has become a classic. Working in Odessa (now tragically occupied by Germany) he developed an efficient technique of treating corneal opacities by grafting the corneas from healthy eyes. The supply of healthy corneas is derived mainly from the bodies of persons killed in accidents, and the eye may be stored in an icebox up to a week before use. Since it was found that diseased tissue in the neighborhood of grafts frequently showed improvement, Professor Filatov developed his grafting as a form of treatment for such conditions as skin tuberculosis and certain corneal lesions.

In the Central Emergency Hospital of Moscow, under the guidance of the surgical chief, Professor Judin, extensive use has been made of stored supplies of cadaver blood for transfusions. Professor Judin is able to show remarkably low mortality figures for his cases of perforated peptic ulcers treated by partial gastrectomy and blood transfusions.

Starlings as Possible Carriers of Foot and Mouth Disease

Foot and mouth disease can be transmitted to man. There have been a few unmistakable cases and as a menace to flocks and herds, and thus indirectly to man, it may be ranked in the first class. The rat is undoubtedly the worst of the numerous pests inimical to the human race. He carries a flea which transmits to man in a favorable environment one of the deadliest diseases known and his destructive properties are exercised on an immense scale far and wide. Perhaps, the mosquito is the next most directly dangerous to mankind of all the insect pests. These pests indirectly are the source of an almost incredible amount of food destruction and impairment.

Some birds are eyed askance as bearers of infection, and the starling is under suspicion as a carrier of foot and mouth disease. W. S. Bullough considers the implication that starlings may be guilty of spreading this disease, at least occasionally, in a communication to the British Royal Society, April 23, 1942. The majority of outbreaks are explained easily, but mysterious outbreaks, which occur anywhere and at any time of the year, separated from the nearest infected area by hundreds of miles or from the last outbreak by many months, seem in some degree, like epidemics of influenza, impossible to account for. Bullough suggests that the starling may be the culprit and brings forward evidence in support of this suggestion. In the first place, this bird is intimately associated with pasture lands and may often be seen perched on the backs of cattle and sheep. In Sweden, Denmark, Germany and Holland similar conditions prevail, and while the evidence is not sufficiently clear definitely to incriminate the starling, it is clear enough to place him under suspicion. Bullough shows that the incidence of mysterious outbreaks of foot and mouth disease conform to some extent to the movements of this bird.

The verdict, however, is suggestive, not conclusive, and must be brought in as nonproven. However, it is well worth while to follow up this line of argument as foot and mouth disease is a menace to man and beast, and it would be to the benefit of both if the causes of mysterious outbreaks could be traced to their source. Prevention is always better than cure.

Cod-Liver Oil

Of all the benefits which John Hughes Bennett conferred on the community, and he was a great medical man, a great teacher, and a scientific man of the first rank, one of the greatest was his treatise, *Cod-liver Oil as a Therapeutic Agent*, in which he pointed out its medical and food value. His advocacy of cod-liver oil brought it into general vogue as a remedy. In the treatment of bronchitis it is invaluable. In the re-

cent growth of our knowledge of the vitamins, the protective and curative action of cod-liver oil, especially in pulmonary diseases, where it is almost a specific, has been neglected or forgotten.

While cod-liver oil contains vitamins, iodine is also present, and many of its virtues are due to this iodine content, rather than to its other constituents. It is a most useful drug in rickets, and because of its iodine content is valuable for pregnant women. Cod-liver oil is both a drug and a food, and in all wasting conditions acts as a builder of the first order. The fact that it contains iodine is one of its greatest medicinal properties, a virtue which is not so generally recognized and appreciated as it should be.

News Items

Third Harvey Lecture.—Dr. John R. Paul, professor of preventive medicine, Yale University School of Medicine, delivered the third Harvey lecture at the New York Academy of Medicine, Thursday evening, December 17th. His subject was "Poliomyelitis".

Dr. Bela Schick Honored.—Six hundred prominent physicians attended a dinner given in New York by the Russian War Relief, Inc., Friday evening, December 11th, in honor of Dr. Bela Schick, the discoverer of the Schick test. Dr. Foster Kennedy was chairman of the dinner committee, and other speakers were Dr. Henry Ernest Sigerist, William H. Welch professor of historical medicine, Johns Hopkins University, and Major George Fielding Eliot, military expert.

Theobald Smith Lecture.—Dr. Ruiz Castañeda, of Mexico City, delivered the annual Theobald Smith Lecture of the New York Society of Tropical Medicine at a joint session of the Society with the Section on Medical Sciences of the American Association for the Advancement of Science.

Prize Award for Research in Laryngology and Rhinology.—It is announced that money is now available from the Casselberry Fund of the American Laryngological Association for a prize award for original research in laryngology and rhinology. Dr. Arthur W. Proetz, 1010 Beaumont Medical Building, St. Louis, Mo., is secretary of this association. Complete theses must be in his hands before March 1, 1943.

Memorial Hospital to be Named for Dr. Goldwater.—Welfare Hospital for Chronic Diseases, on Welfare Island, New York, will be named the Goldwater Memorial Hospital in honor of the late Dr. S. S. Goldwater, former commissioner of hospitals, who designed it.

Mary Putnam Jacobi Fellowship.—The Women's Medical Association of New York offers a Mary Putnam Jacobi Fellowship for medical research of one thousand dollars, available October 1, 1943. It is open to any woman doctor, American or foreign, who is a graduate of a reputable medical school. Dr. Annie S. Daniel is secretary. Application blanks may be obtained from Dr. Phoebe L. Dubois, whose address is 150 East 73d Street, New York, N. Y.

Medical Society of the County of New York.—At the 137th annual meeting of the Medical Society of the County of New York, Dr. Maximilian A. Ramirez was installed as president and other officers were elected as follows: Dr. Conrad Berens, president-elect; Dr. Francis N. Kimball, first vice-president; Dr. Roy B. Henline, second vice-president; Dr. B. Wallace Hamilton, secretary; Dr. Beverly C. Smith, assistant secretary; Dr. Fehwick Beekman, treasurer; Dr. John Carroll, assistant treasurer; Dr. Harold B. Davidson and Dr. Howard C. Taylor, Jr., censors.

Prize For Glaucoma Research.—The National Society for the Prevention of Blindness announces that an award of \$250 will be made by the society for the most valuable original paper which will add to the knowledge of early glaucoma. The society has appointed an ophthalmological committee to make the decision in regard to the award. This committee is composed of Dr. Arnold Knapp, Dr. Manuel Uribe Troncoso, and Dr. Mark J. Schoenberg. For full details in regard to this award, write to the office of the National Society for the Prevention of Blindness, 1790 Broadway, New York City.

Nutrition Research.—According to *Science*, the sum of \$1,100,000 to support a five-year program of basic research in the science of nutrition has been contributed by a group of food and closely related manufacturers. The announcement was made by George A. Sloan, president of the Nutrition Foundation, at a meeting of the Board of Trustees held on November 12th. The allocation of these funds for research to various universities throughout the United States was discussed by the board. Additional grants amounting to \$46,000 were appropriated; in all, fifty-four grants were made during 1941 to thirty-three colleges, universities, and medical centers.

Medical Supplies for America's Armed Forces.—Dr. Joseph P. Hoguet, medical director of the Medical and Surgical Relief Committee of America, has announced that supplies valued at \$5,019.24 were furnished to America's armed forces during November. The shipments included eight emergency medical field sets, three operating sets, four wheel chairs, one transfusion set, two cystoscopes, 250,000 sulfanilamide tablets, 2,000 sulfaguanidine tablets, 1,000 pyramidon tablets, 225 vials of gas gangrene vaccine, and 610 vials of insulin.

Urology Award.—Dr. Miley B. Wesson, San Francisco, Calif., chairman of the Committee on Scientific Research of the American Urological Association, announces that the Association is offering an annual award "not to exceed \$500" for an essay (or essays) on the result of some specific clinical or laboratory research in urology. The amount of the prize is based on the merits of the work presented, and if the Committee on Scientific Research deem none of the offerings worthy, no award will be made. Competitors are limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years. The selected essay or essays will appear on the program of the annual meeting of the American Urological Association, to be held in St. Louis, Mo., May 31st to June 3d. Essays must be in the hands of the secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis, Tenn., on or before March 1, 1943.

Dr. Doisy Honored.—At the mid-year meeting of the American Pharmaceutical Manufacturers Association, held in New York during the week of December 7th, Dr. Edward A. Doisy was awarded the medal of distinction in recognition of his isolation of the female sex hormone, estrone, in pure form, and for other contributions to the knowledge of estrogenic substances. Dr. Torald H. Sollmann, dean and professor of pharmacology and materia medica, Western Reserve University School of Medicine, Cleveland, made the presentation address. Other addresses on the subject of hormone therapy were made in Dr. Doisy's honor by Dr. George R. Cowgill, Yale University School of Medicine; Dr. Oscar Riddle, Carnegie Institute, and Dr. Ephraim Schorr, Cornell University Medical College. Dr. Doisy, in reply, gave a brief history of his experiments. The medal of distinction is awarded annually by the American Pharmaceutical Manufacturers Association to a scientist who has made a fundamental contribution to public health in the field of drug therapy.

Reconstruction Hospital Clinical Society.—At a meeting of the society, held on Wednesday evening, December 16th, cases of fracture were presented as follows: Old compound fracture of ankle, osteomyelitis following, with result one year post-trauma, by Dr. John J. Moorhead; Compound comminuted fracture-dislocation of os calcis, open reduction, with result five years post-trauma, by Dr. Emmett A. Dooley; Displaced intraarticular fracture of lower end of tibia, with result two years post-trauma, and Pott's fracture associated with longitudinal fracture of tibia, with result one and one-half years post-trauma, by Dr. Henry H. Ritter; Markedly comminuted supramalleolar fracture, with result five years post-trauma, and fracture of both ankles with result one and one-half years post-trauma, by Dr. David Goldblatt.

Laboratory Training for Medical Officers.—The first of three groups of U.S. Army Medical Officers being sent to the Medical School of the University of Michigan for a special course in laboratory training and methods, completed their course on December 19th. The second group, which consists of twenty-seven army physicians, arrived at the university on January 4th. No date has been set for the arrival of the third group. Dr. Howard B. Lewis, chairman of the department of biological chemistry and director of the College of Pharmacy is the coordinator in charge of a staff of eight university professors, according to *Science*.

Symposium on Poliomyelitis.—At a meeting of the New York Physical Therapy Society, held at the New York Academy of Medicine, December 2d, the Kenny treatment of poliomyelitis was discussed. Dr. Madge C. L. McGuinness, secretary of the society, presented cases which illustrated late and early physical therapy treatment of poliomyelitis, and Dr. Jessie Wright, director of the D. T. Watson School of Physical Therapy, affiliated with the University of Pittsburgh School of Medicine, read a paper which dealt with the early treatment of acute poliomyelitis. Dr. Don W. Gudakunst, medical director of the National Foundation for Infantile Paralysis, delivered an address on "The National Foundation and the Treatment of Poliomyelitis." A general discussion followed.

Social Hygiene Day.—Dr. Walter Clarke, executive director of the American Social Hygiene Association, has announced that February 3, 1943, will be observed throughout the United States as Social Hygiene Day. In making the announcement, Dr. Clarke pointed out that this battle on the home front against venereal disease is nation-wide. Community meetings will be held throughout the country, which will be sponsored by local clubs, church groups, and social and health agencies. Syphilis and gonorrhea are enemies which threaten the home front. For this reason Social Hygiene Day will assume great significance.

American Association for the Advancement of Science.—The one hundred and eleventh meeting of this association was held in New York, N. Y., December 28th to January 2d, inclusive. This was the sixth time the association met in New York, the first meeting having been held in August, 1887. The Hotel Pennsylvania was headquarters for the association: most of the fifteen sections met in that hotel. The program dealt largely with questions related to war: for example, there were symposia on food in war and peace, nutrition, tropical medicine, science in the war of production, and so on. The attendance was good, in spite of wartime restrictions of travel. Dr. Irving Langmuir, the retiring president, delivered the annual address, and Dr. Arthur H. Compton was installed as president and presided at all general sessions.

Friday Afternoon Lectures.—The following lectures in the 1942-1943 series of Friday Afternoon Lectures being given at the New York Academy of Medicine will be presented during February:

February 5th: Intractable pain; surgical and medical treatment, by Dr. Byron Stookey, professor of clinical neurological surgery, College of Physicians and Surgeons, Columbia University.

February 19th: Clinical types of coronary insufficiency and their recognition, by Dr. Robert L. Levy, professor of clinical medicine, College of Physicians and Surgeons, Columbia University.

February 26th: Recent advances in the clinical interpretation of laboratory data, by Maurice Bruger, associate clinical professor of medicine, New York Post-Graduate Medical School, Columbia University.

New York Academy of Medicine Election.—At the annual election, held on Friday evening, December 4th, Dr. Arthur F. Chace was elected president succeeding Dr. Malcolm Goodridge. Dr. Cornelius P. Rhoads, director of Memorial Hospital, was elected vice-president for a term of three years, succeeding Dr. Henry W. Cave, who has been appointed chairman of procurement and assignment of the War Man Power Commission in the Second Service Command. Others elected to office were Dr. Robert E. Pound, secretary for a three-year term; Dr. Malcolm Goodridge and Dr. Harold R. Mixsell, trustees for five-year terms; Dr. Kirby Dwight, trustee to fill Dr. Chace's unexpired term through 1945; Dr. Edward F. Hartung, Dr. R. Townley Paton and Dr. Philip Van Ingen, members of the library committee for three-year terms; Dr. Ruth M. Bakwin, Dr. Thomas K. Davis, Dr. Locke L. Mackenzie and Dr. Thomas G. Tickle, members of the committee on admission, for three-year terms, and Dr. Lewis B. Robinson, member of the committee on admission, to fill an unexpired term through 1943.

Personal.—Dr. Eugene L. Opie, since 1941 emeritus professor of pathology, Cornell University Medical College, has returned to active duty in the department during the absence of Dr. William Dock, who has been commissioned a major in the Army. Since his retirement Dr. Opie has been engaged in research work at the Rockefeller Institute for Medical Research.

Dr. Normand L. Hoerr, professor of anatomy, Western Reserve University School of Medicine, Cleveland, Ohio, is conducting a course in human neurology at the University of Southern California School of Medicine, where he is serving as visiting professor of neuroanatomy. Dr. Hoerr will be in Los Angeles until February 1st.

Dr. Bernard Sachs was honored for "his sixty years of participation in the progress of medicine" by a special meeting of his colleagues held at Mount Sinai Hospital on November 24th. Over two hundred neurologists and psychiatrists attended the ceremony; Dr. Foster Kennedy presided.

Dr. Walter H. Eddy, professor emeritus of physiological chemistry at Columbia University, has been appointed chairman of the department of nutrition and related sciences at the New York Institute of Dietetics.

Dr. Albert A. Berg, has been appointed to the Board of Visitors of the State Tuberculosis Hospital at Raybrook, New York, succeeding Dr. George H. Ramsey.

Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, has become a member of the board of sponsors of the National Jewish Hospital, Denver.

Dr. Felix J. Underwood, Jackson, Miss., was chosen president-elect of the American Public Health Association at an annual meeting held in St. Louis, Mo.

Dr. Franklin P. Gengebach, Denver, Colo., was named president-elect of the American Academy of Pediatrics at a meeting held in Chicago in November.

Louis A. Julianelle, Ph.D., associate professor of applied bacteriology and immunology in ophthalmology, Washington University School of Medicine, St. Louis, Mo., has been appointed chief of the division of infectious diseases of the Public Health Research Institute of the City of New York, Inc.

Dr. Walter D. Stevenson, Quincy, Ill., first president of the Mississippi Valley Medical Society, has been presented with the distinguished service award for 1942.

Louis H. Pink, New York State Superintendent of Insurance since 1935, has been elected president of the Association Hospital Service of New York, to fill the vacancy created by the death of Dr. S. S. Goldwater last October. Dr. Paul Keeler is vice-president and medical director of the Service.

Dr. William Goldring, New York, on Wednesday afternoon, December 23d, delivered the third lecture in the refresher course in cardiovascular disease being given under the joint auspices of the New York Academy of Medicine and the New York Heart Association. His subject was "The Management of Hypertension".

Dr. Henry Cave, assistant clinical professor of surgery, College of Physicians and Surgeons, Columbia University, delivered the fifth Friday Afternoon Lecture at the New York Academy of Medicine, on December 18th. His subject was the Surgical Management of Cancer of the Rectum.

International and Spanish Speaking Association—A meeting inaugurating the seventeenth season of scientific sessions of the International and Spanish-Speaking Association of Physicians was held in New York, on Friday evening, November 27th. After the reading of minutes and the election of ninety-three new members, a symposium on the "Problem of the Specialist in War Induction and Procurement" was presented. The subject was discussed from the viewpoints of various specialists, as follows: Col. L. A. Salisbury, Second Army Corps, diagnostician; Major Neal Owens, New Orleans, plastic surgeon; Dr. G. A. Blakeslee, Columbia University, psychiatrist; Major D. A. Godnick, dental examiner, dentist; Capt. A. A. Langsam, Medical Corps, internist; Dr. R. M. Brickner, Columbia University, neurologist; Captain Bernard Hata, radiologist; Dr. M. E. Kenworthy, Columbia University, psychologist.

His Excellency, the Minister of Peru, was the guest of honor and transmitted to Dr. Gershberg a photograph and letter from His Excellency, Manuel Prado, accepting the honorary presidency of the association. On Sunday, December 20th, Dr. Gershberg gave a party at his residence, 125 Riverside Drive, to Dr. Emilio Hergert, for fifteen years the recording secretary of the association and now celebrating his seventieth anniversary. Dr. Gershberg, during his recent trip to the Pacific Coast, organized new chapters of the International and Spanish Speaking Associations at Memphis, Tenn.; Tucson, Arizona; Dallas, Texas, and Hollywood, Calif.

Simplified Treatment of Acute Tonsillitis

(Continued from page 39)

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Nutritive Value of Candy Bars

(Continued from page 24)

pleasures and forms of relaxation may be hard work in the physiological sense. Hence, to estimate an individual's caloric needs fairly it is essential to consider the energy expenditure beyond the fixed working hours, especially in the form of athletic sports. Many professional men and business executives, for instance, expend more physical energy in their tennis and golf than in their regular vocations.

The seasonal variations in caloric requirements must also be taken into consideration. As previously indicated in the case of soldiers (Epstein, 14), the caloric needs may rise appreciably in cold weather. The carbohydrate content of the diet must be given special consideration in winter (Alexander, 21). Being essentially energy producers carbohydrates are responsible for the production of heat by increasing muscular activity.

Increased Calories as a Thermal Adjustment in Winter

The problem of adequate calorie intake during cold weather, particularly as it pertains to populations under war conditions, was recently discussed by Bezançon (22) before the French Academy of Medicine. He pointed out that under the influence of cold it is necessary for warm-blooded animals to triple or even quadruple their calorie intake. In humans living in temperate climatic zones who do not greatly modify the protective nature of the clothing, the thermal adjustment varies from 1,810 calories in summer to 3,000 calories with the arrival of cold weather.

It is the opinion of DuBois and Chambers (18) that calories, the units employed in the estimation of the feeding of populations, may yet determine the outcome of the present war. They say: "Calories in medical practice are just as important as they ever were, in spite of the fact that attention has been centered on the vitamins. No supplements of vitamins or mineral elements can alter the laws of the conservation of energy. Calories are still needed to keep the body warm and to furnish energy for muscular work."

Proportion of Carbohydrates in Diet

Government nutritionists estimate that carbohydrates constitute fifty to sixty percent, or more than half, of the American diet. In the official publication on nutrition in which these figures appear, it is stated (Mitchell, 4) that carbohydrates contribute the cheapest, most easily digested and most quickly available forms of food. Physiologists and nutritionists alike concur on this viewpoint (McLester, 9; McCollum, Orent-Keiles and Day, 23; Starling, 1; Lusk, 24; Nixon, 25; Smith, 26). As Reeves (27) so concisely puts it, "the carbohydrates are usually the most abundant and most economical sources of energy of all the constituents of the well balanced diet. It has been aptly said that in the long run all the energy of living matter comes from there."

As is well known, a certain amount of carbohydrate is necessary for the complete utilization of fats; hence the expression that fats "burn in the flame of the carbohydrate" (Hawk and Bergeim, 28). Fats have a high caloric value, more than twice that of carbohydrates. The average caloric value of the fats is 9.3 calories per gram as compared with an average value

of 4.1 calories per gram for the carbohydrates. However, it has been determined that, when both fat and carbohydrate are available, the muscles display a preference for the latter as a source of energy (Bainbridge, 29).

About two decades ago, Krogh and Lindhard (30) made a rather extensive study on a series of six different subjects to determine the relative value of fat and carbohydrate as a source of energy. The results of this work showed quite definitely that work is more economically performed on carbohydrates than on fats. Moreover, when sufficiently severe tasks were undertaken, the subjects performed the work with more difficulty and became more tired on fats than on carbohydrates.

Carbohydrates as Sparing of Protein

In considering the nutritive value of carbohydrates, one should remember that these foods are outstanding as the greatest spacers of protein (Lusk, 24; Hawk and Bergeim, 28). Moreover, Howell (31) cites experimental work which shows that carbohydrates are much more efficient as spacers of protein than fat. Nor can one overlook the fact, as pointed out by Fishbein (32), that failure to supply an adequate amount of carbohydrates will cause the body to utilize protein material from the tissues to meet the energy requirements.

Considered from another angle, it is interesting that Nixon (25) should have observed that, if carbohydrate is added to the diet, the amount of meat required may be reduced. He states that the most effective protein sparing diet consists of a mixture of carbohydrates and fats in which at least half of the energy is provided by the former. This protein sparing property of the carbohydrates deserves especial consideration in time of war when meat rationing becomes a necessity.

The protein sparing action of carbohydrate is of extreme importance to the clinician (Olmsted, 33). In starvation, body protein is broken down even when there is a sufficiency of body fat. This is particularly true after forty-eight hours of fasting, when the glycogen stores of the liver are exhausted. However, as has been shown many times, even a small amount of available carbohydrate suffices to prevent oxidation of the body proteins.

Sugar as a Source of Energy

Of the several carbohydrates available, sugars are outstanding in that they provide, in a concentrated form, the most readily utilizable carbohydrate and energy producers (Nixon and Nixon, 34).

"The great value of sugar," says McLester (9), "lies in the fact that it offers in a concentrated form the most readily available carbohydrate. Properly taken it throws little burden on the digestive organs and is quickly utilized. It is sometimes spoken of as a 'stimulant'; in a sense one may say that it is the best stimulant, in that it gives to the body suitable material for the immediate renewal of energy. . . Persons who have been accustomed to sugar in the diet find it difficult to get along without it even when an abundance of other carbohydrate is available."

Another advantageous property of sugar that is well worth mentioning is the fact that it enormously increases the satiety value of a meal and thus more readily satisfies hunger (Nixon and Nixon, 34; Kestner, 35). The satiety value of candy bars is a self-

protection against overindulgence and also helps materially to satisfy the excessive appetite of people who have acquired the habit of overeating and find it difficult to adjust themselves to wartime food rationing.

The physiologist Starling (36) in 1930 categorized sugar as "the most useful food for sustaining muscular effort" and mentioned the fact that it is readily absorbed from the alimentary canal. Indeed, the studies of Haggard and Greenberg (37) show "that *luxus* utilization of sugar is associated with high muscular efficiency and relative freedom from fatigue and irritability."

Facts About Candy Bars

Candy bars, containing a considerable proportion of sugars in addition to other nutritive elements, are an excellent source of this quickly utilized energy food in addition to providing a more sustained source of energy in the form of fats and to a slight extent of proteins. Moreover, this energy food is supplied in a concentrated, highly palatable form that contributes very materially to its acceptance and full utilization.

Many physicians are still under the impression that candy consists solely or largely of sugars. This may be true in the case of hard candies, which contain approximately ninety-nine percent sugar; but such products now constitute but a small proportion of the candy consumed in the United States. The modern candy bar is a more balanced combination as shown by the following typical analysis:

Calculation of Protein, Fat and Carbohydrate Content and Caloric Value of the Typical Five-cent Candy Bar (38)

INGREDIENT	GM. PER PACKAGE	PROTEIN (Gm.)	FAT (Gm.)	CARBOHYDRATE (Gm.)
Corn syrup	17.45	0.03	—	12.9
Granulated sugar	16.56	—	—	16.5
Coconut, desiccated	16.29	0.7	6.7	6.2
Cocoa butter	6.44	—	6.4	—
Salt	0.14	—	—	—
Water (absorbed)	2.08	—	—	—
Cocoa powder	5.04	1.1	1.5	1.9
Total	64.00	1.83	14.6	37.5
TOTAL CALORIES				297

The typical candy bar mentioned is by no means simply a sugar confection but a combination of chocolate, coconut, sugar, frozen egg whites, salt, cocoa butter and corn syrup. The carbohydrate, fat and protein contents mentioned above were verified by chemical analysis of the typical 64 Gm. candy bar. The method of Folin and Wu was used for quantitative determination of the carbohydrates; the Bloor method, for the fats; and Gradwohl's method, with alkaline hydrolysis and colorimetric determination of the chromogenic factor with Folin's protein reagent, for the proteins. Of the 297 calories supplied by this typical candy bar, 154 are derived from carbohydrates and 143 from fats and proteins. Hence candy bars can in no sense be classified merely in terms of sugar.

"An ordinary mixed diet contains about sixty percent of the total fuel value of the food in the form of starches and sugars," state Booher and Coons (39) in the yearbook on *Human Nutrition* published by the U. S. Department of Agriculture. In this connection, a typical candy bar (38) provides only fifty-two percent

of its total fuel value in the form of carbohydrates, the remaining forty-eight percent being derived from fats and proteins. In this respect the candy bar is in line with the calorigenic requirements of the ordinary mixed diet and not excessive in its proportion of sugar.

Statistics gathered by the U. S. Department of Commerce (Nemir, 40) show quite clearly that the candy industry uses enormous quantities of nutritious foods in the formulation of its products, more especially of candy bars. Among the materials so utilized are cocoa products, including chocolate and cocoa butter; dairy products, including milk in various forms, cream and butter; eggs and egg products; fruits; coconut; vegetable oils; gelatin; peanuts and other varieties of nuts; and many types of flavoring agents.

Hence it might very well be said that the modern candy bar made with a variety of nutrients is quite well balanced with respect to the proportion of sugars and fats as calorigenic constituents and furnishes an inexpensive source of energy. The sugars provide the readily available calories needed for the initial lift, while the other constituents make for the sustained supply of energy so necessary for continued work.

The report of the U. S. Department of Commerce (Nemir, 40) for 1941 shows that the combined candies and confectioneries industries consumed only 6.4 percent of the total consumption of sugar in the continental United States. Household and restaurant uses consumed 61.9 percent of the total sugar and baking 9.2 percent. The sugar consumption for the year is indicated by the following tabulation:

Estimated Consumption of Sugar in Continental United States, 1941

INDUSTRY	SHORT TONS OF SUGAR CONSUMED	PERCENTAGE SUGAR CONSUMPTION
Household and restaurant	4,594,000	61.9
Baking	682,000	9.2
Candy and confectionery	478,000	6.4
Canning and preserving	395,000	5.3
Soft drinks	290,000	3.9
Flavoring extracts	286,000	3.8
Dairy products including ice cream	240,000	3.2
Chocolate and cocoa	169,000	2.3
Other industries	299,000	4.0

Nutritive Fats in Candy Bars

The high proportion of nutritive fats in the typical candy bar is worthy of particular comment, because it serves to illustrate that candy of this type can be and generally is a good source of this important nutrient. As previously indicated, the candy industry is a large consumer of vegetable oils, butter, butter fats and cocoa fat. Fat is also present in many of the other standard constituents of candy bars, coconut, peanuts and the like being excellent sources.

Fat, it must be remembered, is also a high calorie food. On a weight for weight basis it has a potential fuel value of more than twice that of carbohydrates (9.3 calories per gram for fats and 4.1 calories for carbohydrates). Although fats are more slowly absorbed and utilized than are the carbohydrates, they contribute "staying power" to foods with which they are combined (Starling, 1; Lease, 41).

(To be continued)

Book Reviews

A Study of Pain

Pain. By THOMAS LEWIS, M.D., F.R.S., physician in charge of Department of Clinical Research, University College Hospital, London. New York: The Macmillan Company, 1942. Pp. 192. Price \$3.00.

This monograph based on experimental and clinical studies by the author attempts to evaluate an everyday symptom most difficult to define. Pain derived its name from the Latin for penalty, indicating heavenly displeasure with human frailties. To Lewis, pain, like other subjective things, is known by experience and described by illustrations. We have no knowledge of pain other than that derived from human experience, yet we may judge it in animals by bodily reactions that human experience has brought us to recognize as its frequent accompaniments, or by the use of stimuli that similar experience tells us should be painful. Our knowledge of pain, of its sources, of the nerve paths conveying it, has been built up, and will continue to be built up, chiefly by observations upon man, rather than upon animals. It is then built up by test of the sentient surface in the normal subject, tests of skin deprived deliberately or accidentally of its nerves, the innumerable probings of disease itself, stimulation of deep-lying structures during surgical operations, and other forms of exploration of deep structures from without. These ways of studying pain are reviewed and their mechanisms interpreted with great skill. Every intelligent internist and surgeon should study this interpretation of the mechanism of pain in relation to some disease encountered in everyday practice to be rewarded by a more fundamental understanding of underlying phenomena.

Ophthalmology

Ophthalmology and Otolaryngology. Prepared and edited by the Subcommittees on Ophthalmology and Otolaryngology of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Illustrated. Philadelphia and London: W. B. Saunders Company, 1942. Pp. 331. Price \$4.00.

This is the second volume in the series of six *Official Military Surgical Manuals*. Surgeons General Magee, of the Army, and McIntire, of the Navy, have contributed "forewords" in which they state that the purpose of all such handbooks is to offer the medical officer, who has come into the service from civil life, an aid to immediate diagnosis and treatment of emergencies. Just how well covered these subjects may be must be determined by actual experience in the fields of action. The authors of the eye section are Gradle, Benedict, Gifford, Kronfeld, Post, William F. Hughes, Jr., and Alan C. Woods. At base hospitals in or near cities, there will, doubtless, be a sufficient number of highly-trained specialists to take care of intricate procedures. Therefore, one wonders whether the "pinch hitter" will be helped by information concerning the operation for detached retina and cataract extraction. These procedures are not for the tyro.

Famous otolaryngologists who have written chapters in the ear, nose and throat section are: Mosher, Coates, Grove, Imperatori, Kopetzky, Shea, Fenton, Hill, Kazanjian, Lillie, Shurly, the late W. P. Wherry, Berry, Bunch (deceased), Macmillan, and Loeb (de-

ceased). Here, too, there is some question of the subjects chosen for discussion. For example, petrositis is a matter for the expert otologist, and the reeducation of the deafened soldier is obviously post-war or at least a post-battle problem. It would seem that surgeons now in active service know the requirements of this global war more completely than those whose experience dates back a quarter of a century.

There is, to be sure, much of value in both divisions of this book which will well repay careful reading and study. The only question is whether the seeker after immediate aid will find just what he needs.

Medical Practice

Hughes' Practice of Medicine. Revised and edited by BURGESS GORDON, M.D., clinical professor of medicine, Jefferson Medical College, Philadelphia. With sections on nervous and mental diseases by HAROLD D. PALMER, M.D., professor of psychology, Woman's Medical College, Philadelphia; and on diseases of the skin, by VAUGHN C. GARNER, M.D., dermatologist to the Germantown and Frankford Hospitals, Philadelphia. Additional contributors to this edition: Sections of clinical methods by ROBERT CHARR, M.D., instructor in medicine, Jefferson Medical College; articles on endocrinology by ABRAHAM E. RAKOFF, M.D., director of Endocrine Laboratories, Jefferson Hospital; legal aspects of medicine, by LOUIS M. STEVENS, ESQ., president, board of trustees of the Presbyterian Hospital. Sixteenth edition with thirty-six illustrations. Philadelphia: The Blakiston Company, 1942. Pp. 791. Price \$5.75.

A book which passes through sixteen editions has certainly established itself as useful to the medical profession. In the present edition of this book the material has been brought up to date by Dr. Burgess Gordon who now edits it. Included are discussions of newly recognized entities and methods of treatment, particularly in respect to chemotherapy, vitamin therapy and endocrinotherapy. In conformity with previous editions the textual material on "medical" diseases is grouped in a convenient orderly manner according to the style of the times, and includes sections on mental, neurological and dermatological disorders. To maintain brevity, references to source material are kept to a minimum and controversial matters are avoided. Although the book is suitable for use by medical students, it is designed particularly for the convenience and information of those engaged in the practice of medicine.

Diagnosis

Symptom Diagnosis. Regional and General. By WALLACE MASON YATER, A.B., M.D., M.S. (in Med.), F.A.C.P., professor of medicine and director of the department of medicine, Georgetown University School of Medicine, formerly Fellow in medicine, The Mayo Foundation. Originally written by the late WILFRED M. BARTON, A.M., M.D., F.A.C.P., and DR. YATER. Fourth edition. New York and London: D. Appleton-Century Company, Inc., 1942. Pp. 900. Price \$10.00.

The purpose of this book is to aid the practitioner in the diagnosis of a case by allowing him quickly to reduce the number of possibilities to a small list; to prevent the oversight of important considerations; to make the clinician more observant of the common features of disease. It is, therefore, a quick reference book used during or after examination procedures. The index may be consulted for the symptoms desired and the rest is a matter of rapid perusal of possibilities. In this edition a serious attempt has been made to bring the work up to date in the matter of differential diagnosis.

Critique

The Liver in Primitive Medicine

Babylonians made the liver the central organ of the body and harispuce became a most important art. The followers of Mithras located the passions in the liver, while Horace called it the seat of love, and Juvenal said that the liver of an angry man burned with fury. Galen said the liver turned chyle into blood; Megenberg in the fourteenth century said that it separated the valuable constituents of chyle and transformed these into blood. Certain natives of Western Sudan eat the liver of animals to improve their health, while Arabs and other Sudanese still eat raw liver to confer virility, women being forbidden to do so, however, for the obvious reason that they have no souls. Many primitives use and long have used liver therapeutically, and, in the form of blutwurst and otherwise, it was used empirically for anemia before science got around officially to discovering its effectiveness. (*Lancet*, December 1, 1928, p. 1142)

Medical Education, Science, and the Patient

Our customary methods of medical education are, said Harvey Cushing, essentially centripetal and aim to drive formulas into students' heads rather than centrifugal, as Huxley wished, and concerned with making students produce ideas of their own. Furthermore, many medical students today fret to get to the bedside but are delayed by pure science courses. Later, three-fourths of the cases the student will have to treat as a doctor will be flat-footed head waiters, old men with chronic lip scabs, workmen with ulcers or fistulas, young women with backache or lumps in their breasts, babies with convulsions, people with colds or tonsillitis—trifling but humanly important conditions. At this time the anatomist taught the form and situation of the pancreas, the embryologist showed how it budded from the gut, the histologist pointed out the acini and islets, the physiologist presented the accepted theories of its manifold normal functions, the biochemist disclosed complicated ways of detecting and determining sugars, the pharmacologist demonstrated the preparation and action of insulin, the pathologist dealt with the diseased organ, and after two years of that the student saw a patient with a carbuncle or a gangrenous toe, symptomatic evidence of the presence of diabetes, and didn't know what to do about it.

Crime and Normality In 1928, according to records of the juvenile courts of Ohio, boys of normal intelligence who go wrong commit different crimes than boys of lower mentality who become delinquent. The one hundred normal boys studied committed chiefly crimes against property, such as stealing, forgery, and larceny, whereas the one hundred subnormals tended to get into trouble over truancy or immorality. During a certain period the group of normally intelligent boys managed to get away with property valued at \$158,000 while the group of the same size of mentally inferior boys got only \$860 worth. Obviously the normal boys act much more like successful businessmen than do the abnormal boys. Furthermore, the one hundred normal boys managed

to commit more than twice as many offences as the one hundred mentally dull boys; so, be dull and be good; be normal and get the bacon. In a broader way delinquent boys tend to steal or to engage in acts of carelessness or mischief while the girls are usually charged with truancy, running away from home, being ungovernable (wouldn't you know it?) and sex offences.

Tuberculosis

Who increased the expectancy of recovery on the part of consumptives? Leeuwenhoek started the use of the microscope, Lister's father and Abbé perfected the lenses, René Laennec invented the stethoscope, Sir William Perkin's investigations provided color reagents, Villemin demonstrated the communicability of tuberculosis, Koch recognized and cultivated the germ, and Leyden in Germany and Trudeau in the United States were important propagandists of knowledge about tuberculosis. Another disease, syphilis, required men with microscopes, culture media, and dyes; Wassermann's chemical diagnosis, Schaudinn who discovered the spirochaete, Metchnikoff who transferred it to the ape, Ehrlich, and any number of later workers. See Harvey Cushing's *Consecratio Medici* for the full account.

Helping the Indians Three centuries or more ago good books were written to help the Indians. One of these was a volume printed in Cambridge in 1658. It was by Abraham Pierson and was entitled "Some Helps for the Indians, Showing Them How to Improve their Natural Reason to Know the True God and the Christian Religion". One question in this helpful book ran: "How do you prove that there is but one true God?" The wild Indian was then supposed to step up and say; "Because singular things of the same kind when they are multiplied are differentiated among themselves by their peculiar properties; but there cannot be found another God differentiated from this by any such like properties." That is evidently what made the Indians wild and why we had so damned much trouble with the pesky rascals.

Religion in the Dives

Present efforts of a boisterous midget mayor to clean up New York City were not the first by any means. At one time a group of New York ministers paid as high as \$350 for the privilege of holding religious services in various notorious dives. The *New York World* and *Times*, in August 1868, disclosed the machinery of reform at work and carried announcements by divekeepers of their reformation. The whole was a bit of high-class humbuggery or spectacular slumming; divekeepers did not really cooperate voluntarily as the reformers contended. John Allen, member of a pious family, originally intended for the ministry, once had a notorious dance hall and prostitution factory in the Fourth Ward. This was in 1850, but though a drunkard, thief, procurer, and perhaps murderer, he never forgot religion. He regularly gathered his harlots, bartenders, and musicians together to sing hymns and he read and expounded the Scriptures to them. Each harlot's cubicle contained a Bible and other religious literature, and Allen subscribed to all the religious papers and magazines then published in New York.

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JANUARY 1943

Medicolegal Notes

"Healing Art" Defined

Affirming a conviction for "practicing the healing art" without a license to do so as required by the District of Columbia Code, the United States Court of Appeals for the District of Columbia, *Powers vs. United States*, 128 F. 2d 300, said, per Associate Justice Miller: "It is true that people frequently administer remedies to themselves in their own homes; it is true that nurses, acting under the instruction of doctors, sometimes perform duties which doctors themselves would otherwise perform, and which, otherwise, would come clearly within the scope of the practice of medicine. But neither people in the privacy of their own homes, nor nurses acting under the instruction of physicians represent to persons, who are otherwise strangers to them, that they will cure them of afflictions at a price specified, as was done in this case."

There was evidence that the patient, suffering from asthma, was put to bed in the rear bedroom of the defendant's home, that the defendant put the patient on a diet, brought her food and administered medicine by pills and in liquid form.

The definition of "the healing art" as set out in the

District of Columbia Code is made up of a series of clauses connected by the disjunctive "or"; so that proof of any one would presumably be sufficient to establish the practice. The defendant's acts were held to show at least attempt "to prevent, relieve, correct or cure any disease."

Speculative Medical Evidence Excluded

In an action for malpractice in closing an aperture in plaintiff's middle ear, which defendant had opened, a medical witness undertook to say that if the operation complained of was performed in the way he understood that operation was generally performed by the defendant, without the witness having any understanding as to how the particular operation was performed, and if facial paralysis of plaintiff resulted immediately, then the operation was negligently done. It was held, *Bov. vs. Dixon*, Federal District Court for Western Missouri, 43 F. Supp. 214, that this testimony was extremely speculative and constituted an evasion of the jury's function.

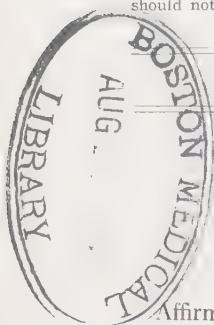
The issue of negligence in failing to keep the aperture open was not submitted to the jury because there was no evidence that the injury complained of had any connection with the alleged closure. Plaintiff's motion for new trial after verdict directed for defendant was overruled.

In Conflicting Medical Testimony, Court Not Bound by Numbers

Where there is a conflict in expert medical testimony, and no apparent way to reconcile it, the court is not bound by the number of opinions on one side or the other, any more than it is bound by the number of lay witnesses. The same rules apply in either case insofar as the interest or want of interest of the witness, his opportunity for observation, and his incentive for testifying are concerned, the Louisiana Court of Appeals held (*Austin vs. Industrial Lumber Co.*, 8 So. 2d 727). Generally speaking, the relative weight and sufficiency of expert and opinion testimony are held to be peculiarly within the province of the jury to decide, as in the case of lay witnesses, considering the character and ability of the witnesses, their actions on the witness stand, the weight and process of the reasoning supporting their opinions, possible bias, whether paid witnesses, relative opportunities for study and observation of the matters about which they testify, and any other illuminating matters.

Conflict of Expert Testimony Leads to Reversal of Award

Physician witnesses in a compensation case were numerically equally divided as to whether or not claimant had a hernia, and there was little lay testimony. On appeal from a judgment for claimant it was held that if an inguinal hernia on both sides of the body resulted from a strain while lifting a hundred-pound roll of paper, claimant was entitled to an award. But on account of the irreconcilable conflict in the medical testimony the Louisiana Court of Appeal reversed judgment for the claimant and remanded the case to enable either or both sides to adduce supplementary testimony. *Mason vs. Southern Kraft Corporation*, 6 S. 2d 757.



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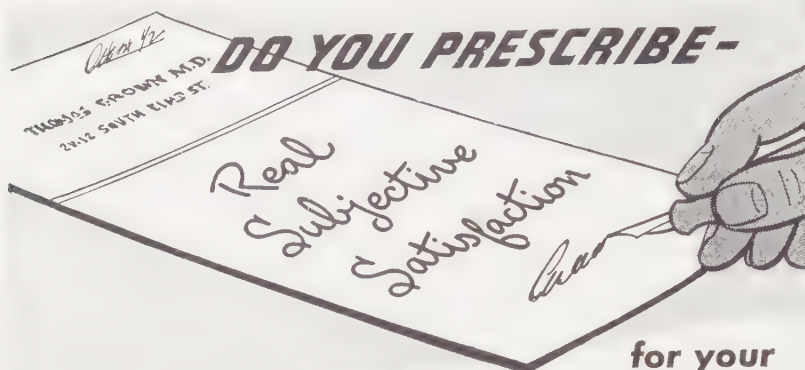
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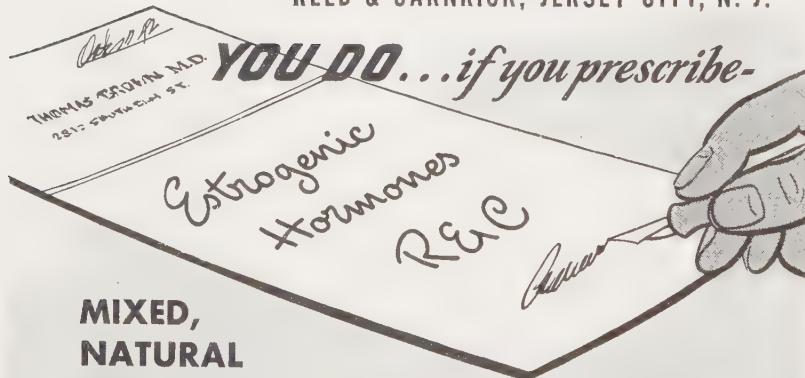


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Cleveland Health Museum Receives Exhibits From New York

On November 20, 1942, the Cleveland Health Museum received from the American Museum of Health, New York, exhibit material which had been presented for the duration.

The exhibits chosen include such famous pieces as the muscle man, the nerve man, a body book of sixteen pages, the nodding head, swinging ear, and acting heart. Models of cell development demonstrate marvels of heredity. More than three hundred exhibit items show what is needed to keep the body running, what hazards threaten its existence, and what limitations must be considered affecting its use.

Most widely known is the Transparent Man whose outer form is modeled after the fourth century Greek statue of "The Praying Boy" which was once in the possession of Frederick the Great of Prussia. This exhibit, symbolic of the others which will be given special showings at the Museum in the beginning of 1943, was unveiled by Mrs. Elizabeth S. Prentiss whose support has helped immeasurably to sustain the Museum.

At the luncheon held to celebrate the second anniversary of the Cleveland Health Museum, Dr. W. W. Peter, associate professor of public health, Yale University, spoke on "Keep the Health Fires Burning". He told how poor health is reducing manpower in this country, that one out of five persons in the productive age group (twenty to sixty-four years old) are handicapped by chronic diseases, serious mental or physical illness.

Dr. Bruno Gebhard, director of Cleveland Health Museum, came to Cleveland in 1940, to design and install exhibit material for its opening and to operate the Museum. Since its opening, November 13, 1940, it has been visited by over 66,000 people.

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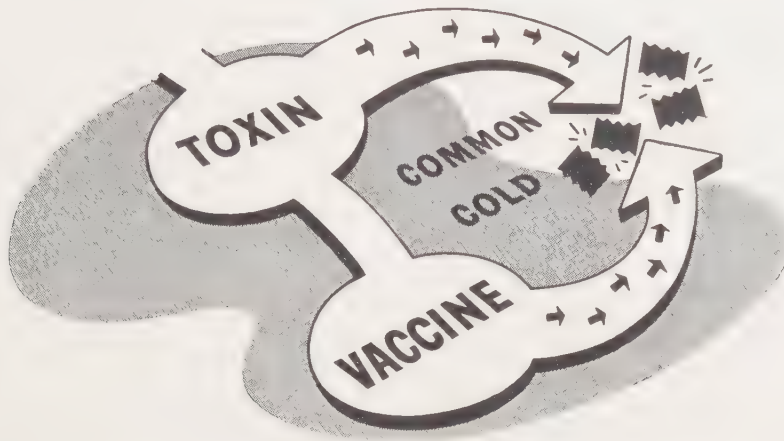
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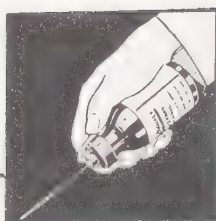
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TRUTH OF THE MATTER

Facts About the School Lunch Program

T. SWANN HARDING
Falls Church, Va.

In March 1942 some six million underfed school children were beneficiaries of the School Lunch Program. The Department of Agriculture, through its Surplus Marketing Administration, has for several years been purchasing farm commodities for domestic relief distribution. Under this program foods that were in surplus and upon which farmers stood to lose heavily were purchased for distribution under the food-stamp, low-price-milk, and School Lunch Programs.

This buying has been greatly increased since March 1941 as a result of purchase for Lend-Lease. Approximately five billion pounds of farm products costing \$651,529,000, were delivered to representatives of the United Nations for Lend-Lease shipment up to May 1, 1942. These purchases consist in large part of dried and evaporated milk, dried eggs, meat, lard, vegetables and nuts, grain and cereal products. Supplies were also bought for domestic distribution, but the great bulk of the food purchased was for shipment under Lend-Lease.

In consequence of this program the function of the Surplus Marketing Administration, now the Agricultural Marketing Administration, has changed. Whereas it formerly made purchases primarily to divert surpluses and support agricultural prices, it now seeks primarily to purchase such foods as will guarantee an adequate diet for the people of the United States and of the other countries fighting aggression. The School Lunch Program remains an important project nevertheless.

Our attempt for many years to educate underfed children is a very curious thing. While we were willing to spend a billion or two dollars a year on the public school system, we thought fifteen or twenty millions a year sufficient for school public health work. While we had no compunctions for many years about spending a hundred dollars a year on a child's education we never thought of spending fifteen or twenty dollars more a year on food to enable it to take advantage of its educational opportunities.

Our modern School Lunch Program is a direct attack on a pressing problem carried on in the framework of the public school. The foods purchased have been bought as near to the original producer as possible.

(Continued on page 56)

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sible, so that the farmer would benefit most. They have been prepared and served by relief workers especially trained for the job. They have consisted largely of commodities that would otherwise have been wasted or else would have depressed market prices, and they were used to remedy child malnutrition.

Victor Hugo began serving hot lunches to children attending a school near his home in Guernsey as long ago as 1865. Such feeding received parliamentary recognition in France as early as 1867. Great Britain first tried feeding school children when, during the Boer War, two out of five men were found unfit to be soldiers. Many early experiments were made in the United States also, usually financed by private charity.

The importance of such feeding cannot be overestimated. Scientific experimentation has pretty conclusively shown that the soundest minds reside in the soundest bodies and that nutrition and learning ability are closely related. As human beings we live not only inside an environment but outside one. The body's internal environment is well regulated biologically, nevertheless there are slight changes in the chemical fluids within us from time to time.

Scientists tend to exaggerate the rigidity with which our internal bodily chemistry is regulated. The same fluids that flow through the body enabling it to perform its functions also bathe and perfuse the brain. Improved nutrition modifies the body's internal environment for the better. Only proper nutrition can ensure normal development of the young. It can also induce a higher level of vitality and accomplishment in both children and adults and very materially lengthen the platform of efficiency before old age sets in.

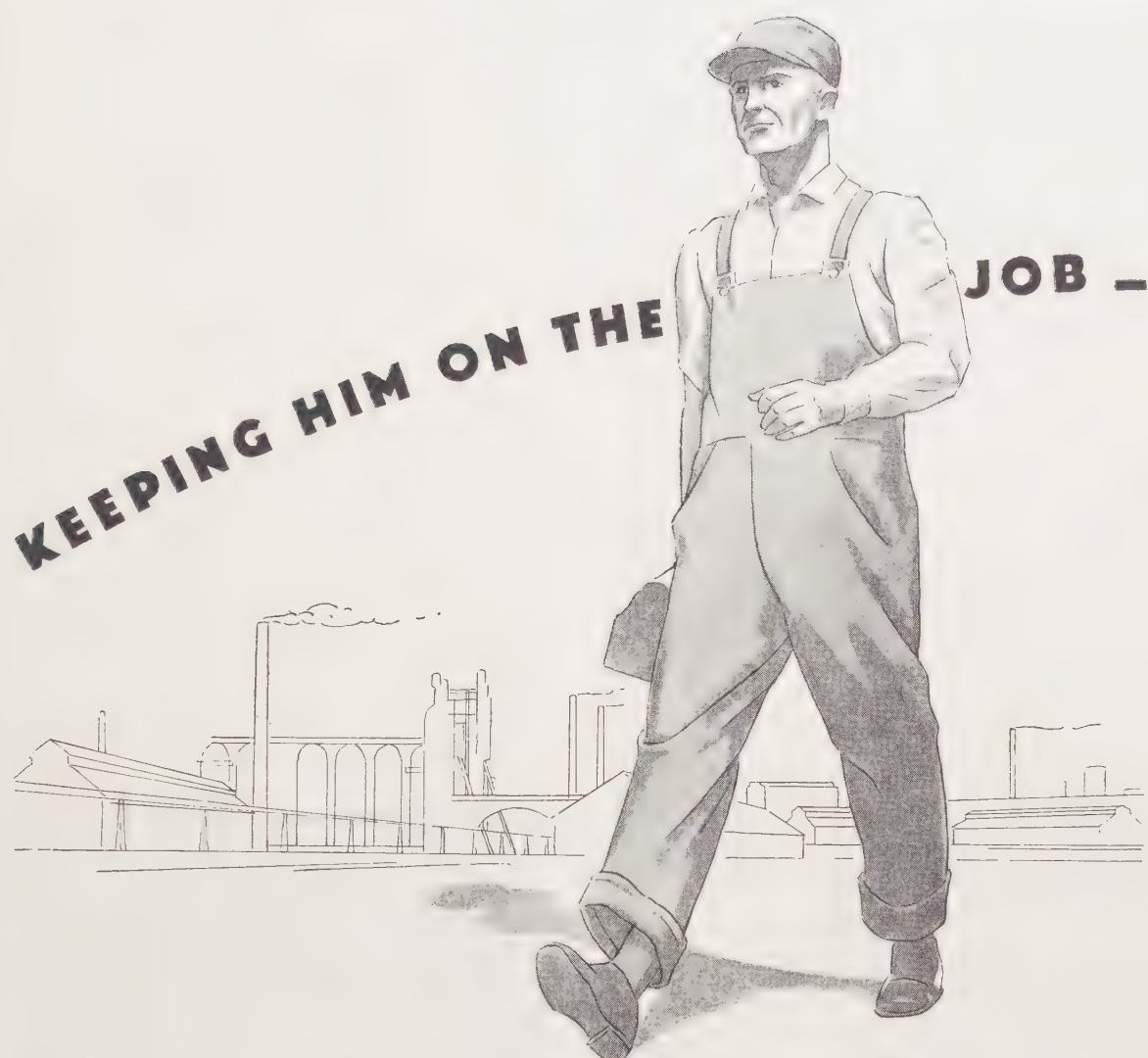
Observations on children who went long undernourished and were then fully fed may be summed up in the remark a Glasgow girl made in high spirit: Now I can lick my brother. Whereas underfed children are apathetic and mentally dull, adequately fed children are active mentally and physically. Poorly fed children quite consistently lack nervous and physical energy, are inattentive, slow in comprehending, unable to remember well, make poor grades, and exhibit general nervous restlessness.

Teachers in schools where the School Lunch Program operates frequently write in spontaneously to say that the children attend better, are more attentive in class work, and make better scholastic grades when properly fed. This means in other terms that the per capita expense of education is much greater for the underfed children who are retarded in their classes and take longer to pass. It is also true, of course, that since the well-fed children attend better, the school's budget, which usually depends on attendance, increases automatically.

A not inconsiderable item is the saving effected in the gifts of humane teachers who, in schools all over the country, often deprived themselves of proper food and other necessities, in order to buy these things for their pupils. Much teacher crankiness in the past should properly be attributed also to malnutrition. The insidious effects of chronic malnutrition are seldom recognized and inadequately discussed. Properly fed teachers and pupils are more cooperative and show improved accomplishment.

In short neither intelligence nor emotional nature are necessarily fixed hereditary factors. Either or both can be modified sharply by dietary means. Unless the

(Continued on page 58)



Hemorrhoids rank comparatively high among the causes of lost "man hours." Today, more than ever, this should be a matter of concern to physicians.

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capacity to learn is there, the school teacher cannot educate the pupil, and evidence has piled up that learning ability is subnormal in inadequately fed children. We cannot afford to let the new generation grow up physically and mentally handicapped by malnutrition.

Indeed the feeding of the growing animal is most important. There is experimental evidence that failure to provide sufficient of the vitamin B complex seriously damages the nervous tissue and renders the animal permanently stunted as to learning ability. It is probable that this impairment is never fully compensated for by adequate diet in later life. Even partial depletion of the vitamin B complex impairs the functioning of the higher nervous centers.

Calcium is important in the establishment of emotional balance and staying power. If soldiers are to be courageous they must be well fed. This means more emphasis on fresh fruits and fresh leafy green and yellow vegetables, on milk, cheese, and ice cream, on tomatoes, citrus fruits, and other sources of vitamin C, and on eggs and butter.

It is extremely necessary that we not only maintain but extend the School Lunch Program even while we are at war. The next generation will have to build the world of tomorrow and that is a supremely important job. They must be fit mentally and physically to undertake it. It is fortunate that the 1942 production goals announced by the Department of Agriculture were established on a basis not only of feeding one-fourth the people of Britain, and others in the United Nations, but also of better feeding our own people. For if we are to win a victory we must all be well fed.

The National Defense Garden Conference was held in Washington December 19 and 20, 1941, under the auspices of the U. S. Department of Agriculture, the Office of Civilian Defense, and the Federal Security Agency. Its emphasis was upon farm gardens, home fruit gardens, community and school gardens. No conversion of city backyards, playgrounds, parks, or golf courses into gardens was advised, but community gardens to help feed needy families are to be encouraged.

The farm goal was set at 1,300,000 more farm gardens so that underfed agriculturalists would have more home-grown food. This saves both the expense and the materials involved in processing and transportation. During the last fiscal year the Surplus Marketing Administration spent \$84,432,195 for farm commodities of which \$14,333,908 went for vegetables. Even then some vegetables were left in the fields because it would not pay costs to harvest them. Half the children who benefited from the School Lunch Program were in the rural areas.

Properly supervised school gardens can be used to help out the School Lunch Program. Last year 4,750,000 children in 67,000 schools were reached by this Program. About 9,000 of these schools had garden projects and 9,500 had canning and preserving projects. These numbers can be considerably expanded in 1942. While the area covered by all the gardens will be but a small fraction of the seven million acres used to produce vegetables commercially they can aid greatly in maintaining the School Lunch Program and the Food Stamp Plan.

(Continued on page 60)

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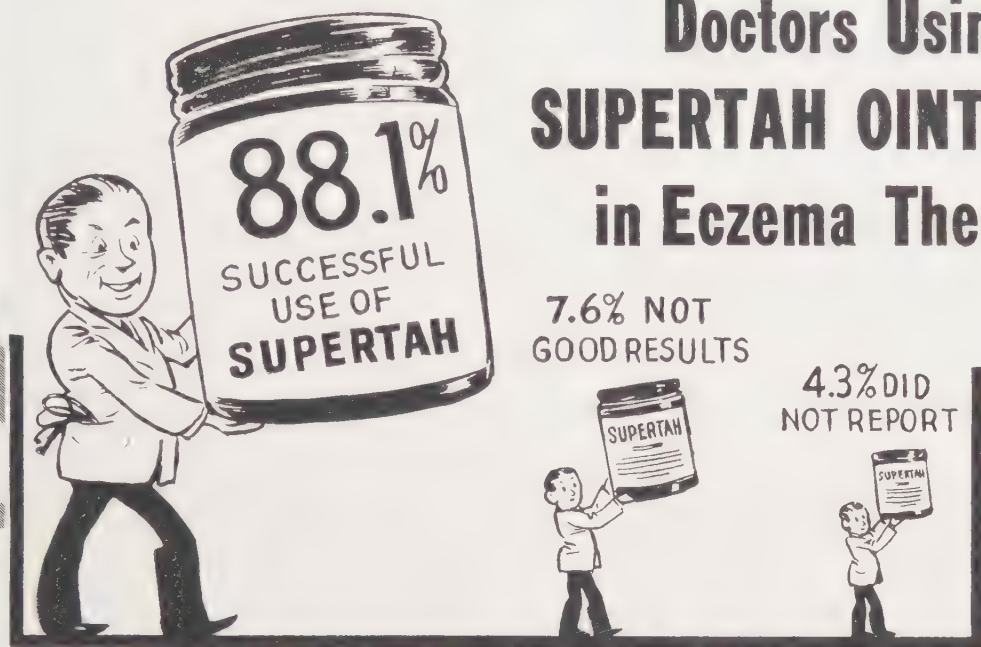
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*Swartz & Reilly, "Diagnosis and Treatment of Skin Diseases," p. 66

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Emphasis upon the production of more protective foods and rich, vitamin-containing green and yellow leafy vegetables has resulted in temporary and usually limited gluts of such commodities from time to time. For this reason the Department of Agriculture is sponsoring a campaign to let none of the food go to waste but to get it all to market for sale as Victory Food Specials. If the excesses are large and cannot otherwise be disposed of, some, of course, is bought to use for school lunches or direct relief in one form or another.

The School Lunch Program pays its own way in health dividends. It prevents children of today growing up to be the chronic invalids of tomorrow. It enables them to become social assets instead of social and economic liabilities. Meanwhile it makes it possible for us of today more quickly and more economically to educate this generation of tomorrow.

National Drug Appoints Schneiderwirth Research Director

The National Drug Company, of Philadelphia, has announced the appointment of Herman J. Schneiderwirth, Ph.D., as director of its Research Laboratories.

Dr. Schneiderwirth is well known for his extensive original research and has directed research activities in the pharmaceutical field for nearly twenty years in the New York metropolitan area. He also holds diplomas as a pharmaceutical chemist and as a food chemist. His patents and publications deal with both biotherapeutic and chemotherapeutic agents. They include serums, vaccines, mucins, colloidal blood substitutes, as well as synthetic organic chemicals of the pyridine and quinoline series and azo dyes.

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Greenblatt, R. B.: J. Clin. Endocrinol, 2:665, 1942.

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Mortality Rate Changes

Harold F. Dorn, United States Public Health Service, presents a review of the changes in mortality rates in the United States during the decade 1930 to 1940 (*Public Health Reports*, December 4, 1942). His findings are summarized as follows:

Between 1930 and 1940 the expectation of life at birth for the total population increased from 59.0 to 63.3 years, or seven percent. Increases occurred at each age, the average being about five percent.

The relative increase in life expectancy was nearly twice as great for nonwhites as for whites. The expectation of life at birth increased 3.5 and 4.3 years for white males and females but 4.4 and 5.7 years for Negro males and females. However, the life expectancy for white persons is still appreciably greater than that for nonwhite persons. The expectation of life at birth is sixty-three years for white males and sixty-seven years for white females, compared with fifty-two years for Negro males and fifty-five years for Negro females.

After adjustment for changes in age distribution the death rate from all causes in 1939-40 was about twelve percent lower than the rate in 1929-31 for whites and about twenty percent lower for Negroes.

The largest relative decreases occurred in the death rates of children and young adults but significant decreases were recorded throughout the entire life span even among persons in the older age groups.

With the exception of the death

rates from heart disease, cancer, and diabetes, the mortality rate for each of the important causes of death was lower in 1939 than in 1930.

For the first time in the history of the registration area, the maternal mortality rate declined uninterruptedly throughout the entire decade. The relative decrease was forty-eight percent among white and thirty-four percent among nonwhite mothers.

Taken as a whole the mortality record of the past decade is one of the most favorable in the history of death registration in this country.

Blankets for Russia

Purchases of approximately sixty thousand blankets for Russian hospitals and sanatoria are being made by Russian War Relief, Inc. The blankets were urgently requested by Soviet medical authorities to help equip both army and civilian hospitals against the bitter Russian winter.

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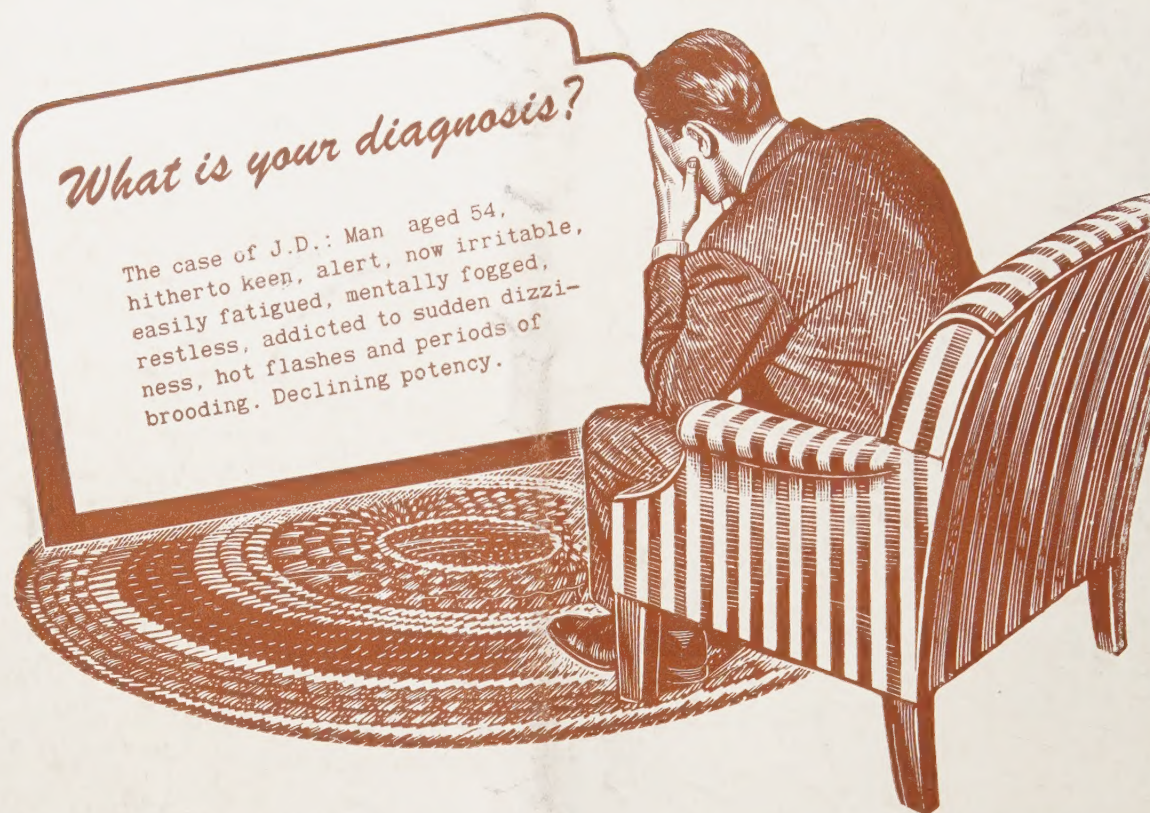
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